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REPORT OF THE COMMONWEALTH FUND
CHILD HEALTH DEMONSTRATION
IN FARGO, NORTH DAKOTA

1923-1927

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FIVE YEARS IN FARGO

REPORT OF THE COMMONWEALTH FUND
CHILD HEALTH DEMONSTRATION
IN FARGO, NORTH DAKOTA

NEW YORK
THE COMMONWEALTH FUND
DIVISION OF PUBLICATIONS
1929

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PART I

FIVE YEARS IN FARGO

A STORY OF PUBLIC HEALTH PROGRESS

INTRODUCTION

THE central purpose of the five-year child health demonstration in Fargo was to show how certain activities designed to better the health of children might be built up as an integral part of a balanced and practicable public health scheme for a small city.

It will be recalled that the Commonwealth Fund Child Health Program, launched in 1922, provided for four such demonstrations in small cities and rural counties. Each was to be financed jointly by the Fund (on a decreasing scale) and by local public and private agencies (on an increasing scale). Each was planned as a unit, in which medical and nursing services were linked up with health instruction in the schools and in the community at large and coordinated with the sanitary and control measures of the health department. Each demonstration was awarded only after the community had made a convincing application for it; the program in each case was approved by the local medical group and by public authorities before work was started, and was carried out in full cooperation with existing public health departments. Fargo was the city selected for the first of these demonstrations, which began in 1923.

The story of the sequence of events by which Fargo adopted for its own the child health activities thus demonstrated is sketched in Part One of this report. The public health activities of the city at the close of the demonstration are appraised in Part Two. In Part Three an attempt is made to describe the child health services included in this program in sufficient detail so that other

cities wishing to undertake them may have the essential facts to work on. These parts were originally prepared for somewhat different audiences and were published separately. No attempt has been made here to alter their individual characteristics in the interest of conformity in style or presentation.

Demonstration and Health Department

It was assumed in Fargo that work for the health of children as a special group could be successful only when it was part of a broader plan of work for the health of all citizens. Practically speaking, the health officer, the school teachers, the nurses employed by school and health departments, and the demonstration workers formed a joint public health staff in Fargo and were dependent on each other in their common task of educating public opinion to accept better standards of child health and to support a broader public health program.

In precise fact, the health department and the demonstration were separate agencies, though the full-time health officer was installed after the demonstration began and the office itself was created as the result of the negotiations which led to the choice of Fargo as a demonstration center. Once appointed the health officer was responsible only to the health commissioner. Though he shared closely in the counsels of the demonstration, his status was that of a permanent city official. The present report, devoted primarily to child health services sponsored by the demonstration, makes no attempt to cover his work in full.

In reading of Fargo's special activities for mothers and children, therefore, it is important to keep in mind the fact that they have been effective largely because they have been linked with community sanitation and competent control of epidemic disease.

Major Objectives

Each of the major divisions of the demonstration program—medical, dental, nursing, and school health education service—had a three-fold significance. The most immediate purpose was to improve the health status of the children of Fargo during the five-year period; each service, therefore, was planned to reach as effectively as possible the greatest number of children. Each service individually, and all the services collectively, were intended to demonstrate their value in such a conclusive way that public opinion would support their continuance after demonstration subsidies were withdrawn. And finally each service was a demonstration, not only to the public and the municipal authorities, but to a particular local professional group, of the value of certain techniques directly influencing child health. Thus the medical division drew the attention of Fargo physicians to the usefulness and popularity of systematic health supervision of well infants and children; the dental program emphasized the importance of preventive dentistry for young children; the nursing program tended to reveal unrecognized needs for routine health services and for family rehabilitation; the school health education service, as worked out by supervisor and teachers, led to marked progress in individualizing the child and vitalizing classroom teaching. In the long run the influence of this five-year project on the professional attitudes of those who deal with the health of children may be among its most important results.

FIVE YEARS IN FARGO

THE DEVELOPMENT OF A COMMUNITY HEALTH PROGRAM

NEARLY every American city has some elements of a health program. The health work of Fargo, a typical midwestern community of about 27,000, justifies reporting especially because it is planned as a unit, and is therefore an organic structure rather than a chance combination of "projects," and because it includes an unusually complete array of services planned to conserve the health of mothers and children and constructive instead of merely remedial in nature.

Environmental factors in public health—water, milk, food supply, sanitation—are cared for in Fargo according to accepted practices under the direction of a full-time health officer with the help of a sanitary inspector. Communicable disease control is based on prevailing standards of diagnosis, isolation and quarantine, with a provision for hospital care at public expense, and measures for the early immunization of children against diphtheria and smallpox. Maternal health is well safeguarded by a high degree of hospitalization at childbirth, coupled with excellent obstetrical practice and supplemented by public health nursing in both the prenatal and postnatal periods. There is public provision for health supervision of infants and preschool children. School children are routinely weighed and measured, inspected daily by teachers with nurses' assistance, and examined periodically by a physician and a dentist. Sound health habits are taught in all classrooms from the kindergarten through the junior high school, and exceptional arrangements have been made for the linking up of classroom teaching with the physician's and dentist's findings as to the health needs of the individual child. Dental corrections for those unable to pay the private

practitioner can be made at a free clinic, and medical service for the indigent is available through a city and county physician as well as through the private generosity of physicians and the local hospitals. Parents are kept informed of the child's health status through school reports and special notifications, and in more than half the cases are also present at the time of the child's medical examination. A staff of six public health nurses gives generalized service by school and home visiting in support of all the essential activities of the program. These nurses, though supported half by the board of education and half by the health department, work as a unit under the direction of the health officer, and thus serve as a most important link between all parts of the community health service.

The present system is largely a development of the past five years, during which a child health demonstration, financed by the Commonwealth Fund and administered for the Fund by the Child Health Demonstration Committee, has gradually developed a public demand for these child health services, has stimulated the progress of the city health department, and has earnestly fostered a cooperative attitude on the part of health and school authorities, parents and children, which is now Fargo's most valuable asset in the field of public health. The pages which follow are devoted to a narrative review of these five years and a brief sketch of the resulting public health program. The growing awareness of the need and value of well-balanced health services in Fargo will be matched, it is hoped, by a growing interest in many other cities which are equally capable of unifying and broadening their public health activities.

Chapter I

THE CITY

WHEN Fargo found itself, with the beginning of the demonstration in 1923, a distributing center for health ideas, the rôle was a familiar one. Fargo, like other prairie cities, has always been a distributing center. It came into being in 1871 as a crossroads town where the new Northern Pacific, feeling its way westward, crossed the Red River of the North, on which steamboats were already plying. It has lived ever since as an intermediary between the prairies and the major manufacturing centers, gathering up the produce of the fertile Red River valley and exchanging it for the goods that farmers need. Its merchants, bankers, newspapermen, and its physicians have made their influence felt throughout North Dakota and the nearby parts of Minnesota. Its chief economic assets are its stable banks and its assembling and distributing plants, where farm machinery, automobiles, and miscellaneous goods are prepared for farm consumption.

How It Grew

The canny settlers who hurried to the site of Fargo when the railroad came found a handful of Scandinavian and American homesteaders already on the ground. The city has come to be what it is through the interaction of the two elements thus disclosed—the solid, conservative, home-loving Scandinavian, and the mobile, opportunistic American who between them have given so much of the Middle West its distinctive character. Like other prairie towns which felt the influence of the westward migrations that followed the Civil War, Fargo was built up by drifting Americans of Scottish, Welsh, Irish, German descent, hailing from Pennsylvania, New England, and elsewhere—who played their part in the city's growth and then, in many instances, moved on further.

Meanwhile a steady influx of Scandinavians from Minnesota and overseas filled the farms and workshops, and the children of these newcomers have proved their claim to a solid footing in the city's economic and professional life. In 1920, out of 21,961 residents counted by the census, 42.6 per cent were native-born of native parentage; 39.8 per cent were native-born of foreign parentage; 17.6 per cent were foreign-born. Among the foreign-born the Norwegians predominated.

The Color of the Community

The diverse relationships of the town's business men with large corporations on the one hand and prairie farmers on the other, and a certain racial clannishness, have tended to create within the community a number of groups, some shifting, some permanent, which have little in common. There are pockets into which new ideas sift very slowly, and the interest of one group in a public enterprise, no matter how keen, may be unknown and unshared in another group around the corner. This has made it the more necessary to educate the community by blanket services—school health work and widely distributed home visiting, for example.

Yet the absence of color lines, and a prevailing "Nordic" origin, have made the people of Fargo sufficiently homogeneous so that they present a typically American picture. The city has its rich and poor, but North Side and South Side alike fit comfortably into the prairie environment. The city is flat, streets are straight, blocks are rectangular. Even the long winter, which keeps the roadways icy from December to March, offers no real barrier to the constant flow of automobiles through the town and across the river—for some of Fargo goes to school at the Minnesota State Teachers College, on the east bank, and most of Moorhead crosses over to Fargo to trade. Churches are numerous, the Lutherans being the largest Protestant group. Prohibition before

DRAWINGS BY HELEN B. PHELPS

FARGO IS FULL OF CLUBS

Volstead extended not only to alcohol but to cigarettes, and it is still unlawful to smoke in a hotel dining room. There are scores of women's clubs. A thriving trade center, Fargo is naturally well supplied with commercial organizations. It boosts: its modest slogan, which used to read "The biggest little city in the Great Northwest," now describes Fargo as "The biggest little city in the world!" Fargo welcomes innovations that give the town distinction.

Illiteracy is negligible, and Fargo's school enrollment is slightly better than that of American cities generally.[1] Standards of living are high. But when it came to grips with the new health teaching, Fargo found that its imported habits were not always favorable to progress. Green vegetables were "cow-feed" in many a Norwegian home; in Fargo some children reported, as the only "green vegetable" they were

[1] In Fargo in 1920, according to the United States Census, 95.3 per cent of all children from seven to fifteen years of age were attending school. The figure for the total urban population was 94.4 per cent. North Dakota's figure is 92.1, but that of course is lowered by the rural majority.

accustomed to eat, the lowly pickle. Coffee, well-stewed, was a stand-by for adults; why not for children too? It was, in fact, a prevailing breakfast staple for all ages. And when the thermometer stands at ten to twenty below for weeks at a stretch, why risk the discomforts, perhaps the dangers, of open windows? Fargo windows are made to keep out the cold air and they succeed. These familiar facts were inescapable premises for any health program.

Politically, as befits the banking and business center of the state, Fargo has been more conservative than its farm-hinterland. The newspaper which for a time flew the banner of the Non-Partisan League has been absorbed into the *Fargo Forum*. In 1913 Fargo took what was then an advanced step in city government, replacing its council with a city commission elected at large. Individual members of the commission are charged with administrative responsibility for various subdivisions of the city's business. One commissioner, for example, is in control of public health, and exercises (subject to the approval of the full commission) the powers ordinarily lodged in a board of health. Public education is directed by a school board which is also elected at large and which is independent of the city commission, fixing its own budget and levying its own tax to meet it. It has provided the city with public schools adequate in number and well-designed, and has gradually introduced the platoon system.

Public Health: 1922

In spite of its slogan, Fargo was much like other small cities in its lack of organization for either health or social work. Only two out of every five American cities (10,000 or over), in 1922, had full-time health officers; Fargo did not. Charity was dispensed by the churches, by a Glad Tidings Mission and the Salvation Army. Poor relief was adminis-

JEFFERSON SCHOOL: TYPICAL OF THE BUILDINGS WHICH FARGO IS NOW PROVIDING FOR ITS CHILDREN

tered by a "county nurse" who gave grocery orders and old clothing. There were a number of institutions of varying competence—the most important being a Florence Crittenton Home which cared for unmarried mothers (whom Fargo draws from all the surrounding territory), the North Dakota Children's Home, recently reorganized into a modern child-placing agency, a Catholic orphanage and others. A short-lived Associated Charities temporarily brought some degree of order into the social work situation, but local difficulties brought it to an end, and not until the organization of a Community Chest in the fall of 1927 were any further steps taken to systematize social work or provide competent family service.

Fargo had in 1922, however, an unusually firm and ample structure for medical service, and the rudiments of a public health program. Its physicians were numerous (fifty-nine were registered in 1925, with fourteen specialties represented) and well trained; they drew patients from a wide area outside the city. Its two private hospitals were well equipped; laboratory facilities and special apparatus would do credit to a larger city. Three groups of physicians were banded together in clinics. The city maintained a communicable disease hospital. The city physician gave only part time, but the technician in charge of the branch laboratory maintained at Fargo by the University of North Dakota, through her diagnostic service, performed some of the functions of a health officer. There was a full-time sanitary inspector. The Red Cross, through an Infant Welfare Society, had begun a well baby clinic with a graduate nurse in charge, to which the physicians were giving volunteer service in rotation. A Tuberculosis Association had made a community survey but had neither a paid worker nor a continuing program. The public schools had two nurses at work, one doing ordinary school nursing and the other serving

chiefly as an attendance officer. The school board had recognized the need for a school physician but had not seen its way clear to provide one.

The community expenditure for public health purposes amounted in 1922 to $0.88 per capita, of which $0.61 went to maintain the health department's isolation hospital.

PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1922

Chapter II

FIVE YEARS

IT was by quick and energetic maneuvering that Fargo began to build on this slight foundation its present well-planned structure of public health service. The Child Health Demonstration Committee had been set up in the summer of 1922 to administer the Commonwealth Fund child health program.[2] It had apportioned its demonstrations—one to the upper Mississippi valley, one (later two) to the South, one to the far West. It had invited, in ten "upper Mississippi" states, cities of between 15,000 and 25,000 which wanted five years of sound child health service, to show cause why they should receive it. Cities from six states had already applied and were under consideration when a Fargo physician heard of the offer, realized its possibilities for his own city, and went into action. He quickly interested the *Fargo Forum*, the Commercial Club, and leading women citizens. They organized a campaign, lined up all the principal civic groups, secured the promise of the City Commission to employ

[2] For a general account of this program, see *Demonstrating Child Health 1923–1927* (Child Health Demonstration Committee Bulletin No. 4); and the annual reports of the Commonwealth Fund 1923–1928.

a full-time health officer the following year, and pressed their claim. The evidence of local interest and the pledge of continuing cooperation were so strong that the Committee soon decided to award the demonstration to Fargo over 28 other applicants. Thus began the five-year partnership between the Commonwealth Fund, making a substantial investment to promote child health, and this ambitious small city, eager to increase its prestige and persuaded that public health progress would be a step in that direction.

Beginnings

The choice of Fargo was made in December. In January, 1923, Dr. William J. French was on the ground to begin work. Dr. French had organized child health centers in Paris for the American Red Cross and was then serving as director of the Delaware State Board of Child Welfare. His first tasks were to make effective working contacts with Fargo and to build up a staff. He began by organizing a general citizens' committee and by reaching a written agreement with the Cass County Medical Society as to the medical and nursing services which the demonstration proposed to offer.

First steps in assembling a staff were to gather together the public health workers already on the job. Edith B. Pierson, R.N., who was running the health center of the Infant Welfare Society, sponsored by the Red Cross, was appointed director of nursing for the demonstration. The Red Cross replaced her with another nurse, and turned the new appointee over to the demonstration. The board of education put its two nurses under the same jurisdiction; the demonstration employed three more nurses, and the staff of six nurses and a supervisor was complete. They were at work by March: the babies already registered at the Red Cross clinic and the school children already under care

formed the nucleus of a clientele. By taking over these cases, and by systematically calling on every family in which a birth was reported, the nurses soon became acquainted with their districts.

From the first all nursing was done on a generalized basis, the city being divided in such a way that every nurse had one, or more usually two, schools and the surrounding territory as her exclusive field of operations. Home visiting by the nurses was concerned with the instruction of pregnant mothers and the mothers of newborn children, health supervision of well infants and children, the care of those ill from communicable diseases (including tuberculosis), teaching methods of disease prevention, and, to a limited degree, the bedside care of patients in other forms of illness. When medical examinations were made at school and health center a nurse assisted the doctor; when dental care was necessary the nurse (when the dental program was finally developed) sifted out applicants for free treatment. In the schools the nurses helped the teachers in the periodic weighings and in special work for children in need of first aid, children giving indications of communicable disease, and children who needed help in securing the correction of physical handicaps. The nurse made a routine visit to each school daily and routinely called at the home of a child absent from school two days unless the reason for the absence was known not to involve a health problem. As the program worked out, school nursing proved to be a major channel by which the nurses kept contact with the families they served.

The nurses were already deep in their work when the medical service was begun with the appointment of Lester J. Evans, M.D., as its director. Dr. Evans had graduated from the Washington University Medical School in 1921, and was assistant resident physician in the St. Louis Children's Hospital. He came to Fargo in April, 1923, and at

once took over the infant and preschool conferences which had been begun under Red Cross auspices. Another conference center, to serve the north side of the city was soon opened at demonstration headquarters, on the second floor of a partly unoccupied school building. The Red Cross continued to maintain the building on the south side and built up around the health center a variety of neighborhood services. Before the end of April Dr. Evans had begun the systematic examination of public and parochial school children.

The work of the demonstration physician centered in the periodic health examinations which were offered to children of all ages and which formed the basis for specific individual health teaching by doctor, nurse, and teacher. Babies and children under six were seen at the health centers as often as the individual child seemed to need examination or the mother wished to bring it. Children in school were examined class by class at the school buildings, the schedule being arranged so that each child would normally be examined five times before entering high school. The staff physician also met private physicians at their request in consultation over the cases of individual children, and gave advisory medical service at certain institutions for children.

While health teaching had been begun in a casual way in the Fargo schools, in addition to the statutory teaching of formal hygiene, no member of the supervisory staff was directly responsible for promoting or guiding it. Miss Maud A. Brown, who had taught hygiene at the Lincoln High School in Los Angeles and had been supervisor of hygiene in the schools of Kansas City, Missouri, was chosen to direct this work in the schools. As she had a research project to finish for the Elizabeth McCormick Memorial Fund in Chicago, she made only a brief visit to Fargo in the spring and Miss Cara Harris, then a member of the staff of the American Child Health Association, took hold of the situa-

tion temporarily. She began her work by demonstrating, in three of the public schools, the food value and charm of "cow-feed"—green vegetables.

The aim of the director of health education was to develop a program by which the average elementary teacher of average preparation—or lack of it—could make her maximum contribution through health education to the health status—present and future—of her pupils. To this end, a group of classroom health measures was worked out and developed into a routine which centered in, and was vitalized by, the study of the individual child. From this as a point of departure there followed other elements of the routine—the daily marking of a health behavior record, the daily serving of milk at school, periodic weighing and measuring, and regular reports to the child's parents of his health behavior and his weight. These routines taken together with the teacher's informal case-record of each child supplied the laboratory element in the teaching of health, which was thus changed from a formalized textbook subject—"hygiene"—into a natural science in which the relation between cause and effect could be intelligently observed.

Meanwhile the demonstration was introducing itself to the community as rapidly as possible through newspaper reports, by addresses before church and civic groups, and especially through a systematic round of conferences with the fourteen local parent-teacher associations. The citizens' committee met regularly: at this stage it accepted detailed responsibility for accounts and appointments, but as time went on it met less often and eventually ceased to function in a consecutive way. An executive committee, which brought together representatives of the city commission, board of education and Medical Society, the city attorney, the health commissioner, and a prominent woman citizen, continued to serve as a cabinet for the demonstration director.

The search for a suitable health officer lasted until summer, when Dr. B. K. Kilbourne, chief of the division of venereal diseases of the Kansas State Board of Health, accepted the position.

As the staff of the demonstration and the health officer gradually worked into their several rôles, increasing emphasis was put on their teamwork. Frequent staff conferences, attended by the health officer as well as the demonstration workers, were used as a means of keeping all public health activities geared together; gaps and inconsistencies were frankly discussed, and some joint consideration of individual cases was attempted.

Eddies and Ripples

The complete story of the five years thus begun, of course, can never be told. Much of the essential rhythm of such a project must be left to the imagination; to report it in detail would be unnecessarily tedious. There was a steady inflow of visitors—experts from the national health agencies, public health and social work executives, state officials, teachers, nurses, clubwomen, European students of American practice, chance callers. During one twelve-month period early in the demonstration out-of-town visitors averaged almost two a week. There was at the same time a steady outflow of information from the demonstration. In the same twelve months members of the staff made nearly 200 addresses to local groups in Fargo, and many outside the city in nearby towns or at sectional and national conferences. Their influence was felt in the educational and sadly limited health work of Cass County, surrounding Fargo. Frequent consultations were held with the state authorities in health and child care. The luncheon clubs in Fargo, to some extent, broadcasted their interest in the demonstration through their national connections. The nursing service maintained close contact,

THERE WAS A STEADY INFLOW OF VISITORS

through its director, with the state nursing organization and with the Red Cross. Children came from outlying points—275 miles in one case—to share in the services offered by the demonstration.

The ripples of local sentiment are even more difficult to trace than this eddying of information. In general the demonstration staff, throughout the five years, had effective cooperation from all elements of the city's life, a cooperation that culminated in the community's taking over the program as its own. But from day to day, and from week to week, there were subtle shadings of opinion, small signs of doubt here, of misunderstanding there, of appreciation somewhere else, which measured the community's rate of acceptance of the program but which themselves defy measurement. The wavering sympathy and uncertain cooperation of this or that school worker, the hesitation of a city official to accept an innovation, the fear here and there of higher taxes, the ripples of opposition in certain minor pools of opinion, the flare-up of protest from this cult or that

—such factors in the story are, with some exceptions, too slight to be recorded in detail, and yet just such glosses must be read between the lines of every report of an enterprise involving delicate community relationships.

The Round of Services

By the summer of 1923 the routine services of the demonstration—the medical services to infants, preschool children, and school children, the nursing services to children, to expectant mothers, and to the community at large; the introductory phases of the health education service in the schools; the statistical service that provided current data for the health department and recorded the progress of the whole program—were all under way. As they have been outlined in previous bulletins[3] and will be reported in detail in subsequent parts of this report, they will not be recounted here.

In passing, however, it may be interesting to suggest the scope of the services which were given, by sketching briefly the experience of two typical Fargo families.

The first is that of a foreign-born skilled wage earner and an American-born wife, with two children at the time the demonstration began. The children had visited the Red Cross health center and were transferred to the nursing service of the demonstration during its first month. The mother was expecting another child and, in response to the effort of the nurse, secured regular medical supervision. The new baby was visited by the nurse on his second day of life and came to the health center at seven weeks of age, remaining under the supervision of the health center physician and the nurse. When still another baby came nursing service was given both before and after its birth and the child was

[3] *Demonstrating Child Health, 1923–1927,* and *A Survey of Public Health Work in Fargo, N. D.* (Child Health Demonstration Committee Bulletins No. 4 and No. 5).

brought to the health center at four weeks. About this time the mother began to lose weight, tired easily, and ran a slight afternoon temperature. Since it was known that her mother had died of pulmonary tuberculosis, arrangements were made with the family physician for a complete examination which showed slight involvement of one lung. Both husband and wife were eager to see what care could be given in the home and, with frequent nursing visits, the favorable adjustment of home routine and a vigorous determination on the part of the mother to get well, the case was arrested and the woman gained thirty pounds in weight.

The four children, the oldest of whom is now in school, have been kept under constant supervision and all are in good health. When one of the little girls had nephritis and the baby had an abscess, it was the nurse who promptly helped the family to secure medical care. One child has had her tonsils removed; all have been vaccinated and immunized against scarlet fever; and recently all of them were given toxin-antitoxin. During the period of not quite five years, the nurses paid seventy-one visits to this home. The oldest boy has been to a health center six times and had two years of health supervision in the schools; each of the other children has been to the health center at least seventeen times. There has been the closest cooperation between the family physician, the health center, the nurse, the school, and the family, and the whole family is in excellent condition.

Another family, in which the father was a foreign-born laborer, came to the attention of the nurses when a boy in junior high school was called on because he had been two days absent from school. The family was found to have measles and the nurse taught the mother how to give the special care needed. In the next month a neighbor told the nurse that the mother was ill in bed. Her condition proved to require hospital care and the nurse's principal service was

to persuade the mother, who after leaving the hospital turned to patent medicines in the hope of making a quicker recovery, that her best hope lay in proper foods, rest and fresh air. Six months after her recovery, the mother came to the school to be present at the physical examinations of her three school children, reported herself to the nurse as pregnant, and asked the nurse to visit the home to help her prepare for the baby. She was already under a doctor's supervision. Eight visits were made after the baby's birth and the baby came to the health center at seven weeks. It was not gaining satisfactorily and, as both the family physician and the health center physician were satisfied that breast feeding was inadequate, a complementary feeding was prescribed. The baby gained seventeen ounces the first week under this regime and showed a "remarkable change in appearance." The baby was brought to the health center every week for a month, then every two weeks, and later every month. It is now a healthy child of three.

During the tuberculosis survey of the town, a physician reported that the father had had incipient tuberculosis. While he has been diagnosed as an arrested case, the school children have been carefully watched. Like most of the children in the Fargo schools, they have had at various times morning and afternoon milk at school. Like all Fargo children they have had daily drill in the health habits. At last accounts all were looking well and gaining in weight.

Playgrounds: An Interlude

While the main outlines of health teaching in the schools were not sketched in until the arrival of Miss Brown at the beginning of the fall term, the summer of 1923 introduced an interesting by-product of health education. Under Miss Harris' direction, two play-centers for children of school age

and younger were opened in Fargo parks. Daily from mid-June to mid-August children gathered in the morning for supervised free play and in the afternoon for organized activities. Children were weighed every two weeks, and even their picnics were so organized as to build up good health habits and to popularize the despised green leaf. The project was carried through successfully at a cost of less than a thousand dollars, and with general approval. The next year the same plan, with a smaller staff, was carried out at the expense of the Rotary Club, which had observed the first summer's work enthusiastically. But in 1925 the Rotarians contented themselves with organizing and subsidizing a junior baseball league, and since 1924 no organized playground work has been attempted in the summer.

The No-Compromise Health Program

When the schools were about to open in the fall, the director of health education introduced what at once became, and remained, the cornerstone of her work. This was the "no-compromise" daily health program. A simple statement of the essential health habits was prepared. In the first six grades of the schools (public and parochial alike) the children were to keep a record of their daily observance of all these habits—whether or not they washed before meals, drank water and milk and eschewed tea and coffee, had cereals, fruit and green vegetables to eat, were provided with a clean handkerchief, had rest and play at appropriate seasons and a "short happy evening at home," had a regular bowel movement, did without candy between meals, and slept as long as they should with windows open. Not only did this regime strike at the citadels of heedlessness and local prejudices, but it laid on the child, the teacher and the parents a new and sometimes puzzling burden of routine. Yet the demonstration staked its case, in health education,

on the complete and whole-hearted acceptance of this new way of life.

This procedure, novel in Fargo, was carefully planned and buttressed. Before school opened the program had been presented to the teachers at their annual institute. Administrative details were worked out with each principal by the director of health education. A bulletin giving the underlying reasons for each item on the health record was put in the hands of each teacher. When the children were weighed (according to the routine already familiar in the Fargo schools) a card reporting the child's weight, a duplicate of the health record, and a letter to the parent explaining both were sent home.

As the new classroom program got under way the director of health education waited with confidence for the no-compromise schedule to justify itself in obvious physical gain on the part of the children. Within six weeks she was able to report that the interest in the simple procedure was already bubbling over into such by-products as songs, plays and posters. When parents were indifferent, children forced the issue. One youngster, after being taken to an evening party as a treat, quietly rebuked his parents by praying "Oh, God, please make it possible for me to get to bed at eight o'clock hereafter." The record, introduced into the schools as an experiment, was soon approved by the principals and teachers, who voted to continue its use.

The long-range effect of the no-compromise program in the home is well described by Mrs. Oscar H. Kjorlie, a member of the board of education, who wrote at the end of the demonstration:

> Children who have learned the value of milk, fruits and vegetables in the diet, of fresh air and rest, at the impressionable age, will unconsciously size up a meal, and demand the right foods; and will find it impossible to remain in an ill-ventilated room. This is

true of my own children who are seven. They ask such questions as "What green vegetable have we today?" or "When will we have celery again?" or remark "I feel tired this morning, I guess the window wasn't open wide enough." Only the future can fully show the value of an education of this kind.

One Child at a Time

As the staff fell into the swing of the school medical examinations, the physical problem with which the demonstration had to deal became clearer and clearer. To sharpen this picture, and bring it into focus for the individual child, a distinctive piece of teamwork was developed. The child's parents were regularly invited to be present when the child was examined: they responded more and more generally during the first two years, and 63 per cent of the examinations in 1924–1925 were made in the mother's presence. The nurse was, from the first, in attendance in the examination room and had access, in preparing for her follow-up visiting, to the doctor's record. Occasionally the principal or teacher also joined the group who were centering their attention on the child.

After the examinations for a school were finished the results were reported to the principal and a conference was then arranged. The pediatrician, with his records, the nurse, the teachers, and the director of health education joined in a discussion of the findings in general and the special problems of particular children. Then each teacher was asked to enter the pertinent facts from the examination record on her own record-sheet for each of her pupils. These sheets were to constitute an "informal and confidential working record" of the health condition and progress of each child. Characteristically, there was some hesitation on both sides as to the value of this procedure; the pediatrician doubted the teachers' ability to make helpful use of the medical information, and the teachers waited to be told what to say.

Increasingly, however, the group conferences and the individual case-records proved useful in enabling the teachers to get a working picture of the "whole child," the teachers' notations became fuller and more significant, and as the Fargo system sends a class to a new teacher every half-year the accumulation of data on each child has proved to be a great help in securing continuity of health effort and the better understanding of the child in his school relationships generally.

Teeth

School dentistry proved to be one of the hardest nuts that the demonstration tried to crack. The dentists were generous in their offer of free service. The demonstration was concerned to develop a system for discovering, accurately and completely, the dental needs of Fargo children and for securing the general practice of oral hygiene and the correction of as many dental defects as possible. In the spring of 1923 the experiment of basing a dental program entirely on the voluntary cooperation of local dentists was begun with rapid-fire examination of all the children in the kindergarten, first and second grades of the public and parochial schools: all the dentists in the city participated and the work was finished in a day. In the following September, after discussion between the demonstration and the Dental Club, a card was issued to all children in the upper grades which urged the parents to send the child to the family dentist. Space was provided on the same card for the dentist's report of his examination, and the children were asked to return these cards to the schools when they were filled out. When the results of this mild propaganda were checked up later in the year it was found that while 6000 cards were issued not much information as to dental corrections actually made could be secured in this way.

Similar campaigns in 1924 and 1925 were likewise unsatisfactory both to the dentists and to the demonstration. It was clear that while such a plan probably stimulated dental care, it was impossible to measure its effects. A more intensive program was later developed. (See page 42.)

Takeover: 1923

At the end of the first demonstration year, 1923, the city had kept its agreement to employ a full-time health officer and had furnished the demonstration with headquarters.

PUBLIC HEALTH STAFF PAID BY DEMONSTRATION—END OF 1923

The star in this and subsequent charts indicates administrative personnel (director, statistician, and a variable number of clerks) whose functions related solely to the demonstration period

The board of education had contributed two nurses to the city-wide staff, the Red Cross, one. The director of health education had been given official status as a supervisor in the public schools and her leadership was, with minor exceptions, being followed cordially and intelligently. Opposition to the medical program in the schools had been negligible.

Generally speaking the community was well-disposed toward the whole program, but hardly ready to undertake as yet the responsibility of sharing more substantially in paying for it. Crop failures in the farmland had induced a sharp economy wave in the town, and the outlook was for lowered rather than increased taxes.

Consolidating the Gains

In the spring of 1924 the demonstration took two steps to consolidate its position. One looked to closer relationship

with the physicians. An essential aim of the demonstration was to stimulate the more general practice of preventive pediatrics. Beside illustrating such work to the public through its medical program, and thus building up a demand for it, the staff now assisted the Medical Society in arranging a symposium to which four prominent physicians from outside the state were invited. The visitors discussed the cases submitted by local practitioners and delivered papers of their own to a large audience drawn from Fargo and the surrounding counties.

PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1923

In the schools, as a means of sharpening and accelerating public interest and of tiding the children over the slack season of the late winter, a cup contest was arranged. A trophy was offered by the Commercial Club to that school which made the best showing in health habits, weight, attendance, and in school sanitation. The cup was won by St. Anthony's parochial school in 1924 and again in 1925, and the contest was not held again. In 1925, indeed, the winner had so long a lead early in the year that the cup had little effect on most of the schools; the new regime had become so well established that the extra incentive seemed no longer necessary.

General community contacts were strengthened, too. The *Fargo Forum* and *Fargo Tribune* designated a staff writer to keep continuously in touch with the demonstration, and accepted the director's suggestions as to syndicated health material. There was also a fresh stirring of interest among the organized women of the city; the clubwomen formed a

NEWSPAPERS HELPED TO SPREAD THE HEALTH HABITS

committee to spread knowledge of the demonstration, and later joined in a brief health institute. Parent-teacher associations throughout the state were urged to follow the example of the Fargo groups in organizing preschool study courses.

School Health Advances

The health education program of 1924–1925, since the project seemed firmly planted in the elementary schools, stressed the junior high schools and the provision of supplementary training for teachers. For the older children, naturally, the familiar health record needed modification. First a form was devised which permitted them to graph their own weight curves, and later a "health bank-book" was offered. This was essentially a briefer form of the health record, showing the health habits well kept as assets and leaving room for the children to enter, according to their own estimate, their health losses. The nurses gave a course of les-

sons to junior high school girls on personal hygiene, the care of children, and first aid.

As underpinning for the health teaching, the supervisor arranged for the circulation of reference books, and a course in biology, anatomy, physiology, and public health was offered by the North Dakota Agricultural College. This proved useful to a number of teachers who were willing and able to sacrifice their Saturday mornings to it.

Takeover: 1924

The end of 1924 found the whole program more thoroughly accepted and reaching a larger clientele. The city was not ready as yet to do much in the way of financial support, but in the face of an economy wave which had resulted in salary cuts for teachers and in reduced budgets for all the other city departments, the health officer was retained at an increased salary, his sanitary inspector was continued, and the city relieved the Red Cross of the greater part of the salary of its nurse. Meanwhile the Tuberculosis Association, under the stimulus of a survey made early in the year by Miss Alice M. Hill of the National Tuberculosis Association, had adopted a program designed to follow up the survey, and had decided to assume support of one of the demonstration nurses. Thus four of the six nurses were carried by local funds. The dem-

PUBLIC HEALTH STAFF PAID BY DEMONSTRATION—END OF 1924

PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1924

onstration had the satisfaction of sharing in the improvement in vital statistics which resulted, in December, 1924, in the admission of North Dakota to the birth and death registration areas.

Medical Adjustments

The Medical Society, it will be recalled, had approved the program of the demonstration before it was begun. Individual members had been closely in touch with its work, and the Society had elected the demonstration pediatrician its secretary.[4] But the director of the demonstration now felt, and the Medical Society agreed, that a committee should be appointed to carry on active and continuous liaison between the two groups. This was done. When the committee met, it disclosed a certain fear on the part of some physicians that the health centers were in some cases coming between doctors and their patients. Actual complaints proved so few as to be negligible, but the demonstration promptly proposed, to the committee's satisfaction, to limit its services at the health centers somewhat more rigorously. While mothers who called with their children had always been referred to private physicians when medical treatment was indicated, it was now agreed that no appointments would be given at all except to mothers who came with the express approval of their family physicians. The frank discussion of this question and its amicable adjustment tended to establish still more firmly the cordial relationship between the demonstration and the Medical Society.

Taking Hold

During 1925 the omens all pointed to the fact that the health habits had taken hold. To illustrate from a single

[4] For a review of the relations between the Medical Society and the demonstration, see a statement approved unanimously by the Cass County Medical Society and published in the *Journal of the American Medical Association*, January 21, 1928.

THE CANDY-SHOP WENT OUT OF BUSINESS

item (the ban on promiscuous candy-eating): in the spring a candy factory sent bundles of blotters advertising its wares for distribution in the schools. All but two schools refused without comment to abet this apparently innocent campaign. In one school the principal went from room to room, before circulating the blotters, to point out that candy was all right *after* meals and only then. Even more striking was the brief career of a little candy store which opened in a favorable location close to a school in the poorer part of town. After six weeks of feeble and dwindling custom, it went out of business. Questionnaires circulated among the grade teachers indicated that in their opinion the health education program was showing results. Out of 78 teachers who responded, all felt that the health habits of Fargo school children had been improved during the two years, 56 of them considering that the improvement was "marked" or "very marked." Seventy also felt that the children's interest had been reflected in better observance of health practices by other members of the family.

When the schools opened in the fall approximately a third of the grade teachers were as usual new to their jobs and unfamiliar with the health program. They were quickly assimilated, however, and in spite of the changing personnel the superintendent felt that the teachers were ready to begin drafting a definite health curriculum. A committee was appointed for this purpose.

During his second year in office, the health officer found smallpox looming large among his communicable disease problems. Thanks partly to some 6000 vaccinations, no cases occurred in Fargo, although the disease was epidemic at nearby points. In 1925 he turned his attention to diphtheria. Acting under a plan worked out jointly with the Medical Society and the Board of Education, he offered Schick tests to all school children, leaving the immunization of those found susceptible to the family physician. This provoked a considerable flurry of opposition: a chiropractor attempted to circularize the pupils against Schick-testing and toxin-antitoxin; was ejected from the school grounds, and retaliated with an injunction which halted the work. The injunction was soon voided, but the flare-up had a double result: the number of objections to medical and dental examinations, on the part of various minorities, slightly increased; and on the other hand the school board, whose approval of the health program was thus sharply challenged, rallied to it more strongly than ever.

The Nurses

By the end of 1925 the nurses had reached, with one type of service or another, nearly 4000 separate families in Fargo. Their cooperation with the medical and health education services, in infant, preschool and school work, became increasingly close. In visiting expectant mothers and newborn babies, as well as cases of tuberculosis and other communi-

cable disease, they assisted private physicians and the health officer directly. Only in one particular did their program meet a definite check: it proved impossible to gather expectant mothers together in groups for the study of prenatal hygiene. After an extended experiment with city-wide and neighborhood classes the nurses gave up this project and again concentrated their efforts on purely individual service to prenatal cases.

In default of organized social service, the nurses carried, throughout the demonstration, the burden of individual families whose progress toward health was balked by poverty or maladjustment. Late in 1925 a movement to secure a trained social worker gained some support among Fargo business men, but nothing came of it. An interesting social work project was, however, launched by the nursing staff in collaboration with the home economics department of the Agricultural College. Seven girls from the senior class, after conference with the nurses, went into homes picked out by the nurses to help in budgeting, marketing, diet, and general home-management. The families they aided felt the benefit, and the field work was a valuable item in the girls' training. This service has been repeated in the succeeding years.

Takeover: 1925

The end of the third year found the financial status of the program much the same. The city budget for the fiscal year beginning July 1 continued the appropriation for the health officer, added a clerk to his staff, and carried the full salary of the nurse whom the Red Cross had been paying in part during the previous year. The Board of Education put its two nurses on a twelve-month salary basis instead of carrying them merely for the school year as formerly, thus recognizing their continuing role in the city-wide program.

On November 1, Dr. French resigned the directorship of

PUBLIC HEALTH STAFF PAID BY DEMONSTRATION—END OF 1925

the demonstration to take charge of the Commonwealth Fund child health program in Austria. Dr. William DeKleine, formerly health officer of Flint and Saginaw, Michigan, had succeeded Dr. Walter H. Brown at the head of the Mansfield and Richland County demonstration of the American Red Cross. When this was wound up, Dr. DeKleine came to Fargo to direct the two remaining years of the demonstration there.

Teeth and T. A. T.

Only two phases of the child health program showed significant changes in 1926 from the routines which had been developed in the earlier years.

During Dr. DeKleine's first week in Fargo, the chairman of the oral hygiene committee and the president of the Fargo-Moorhead Dental Club approached him to urge the establishment of a more satisfactory dental program in the schools. It was decided that a full-time dentist should be employed to set up a dental public health program. The local chapter of the American Red Cross agreed to provide equipment and to pay part of the dentist's salary during the introductory period of the work.

In 1925 the health officer had begun Schick-testing school children. About half the children in the elementary grades received the test, and it was assumed that those found susceptible to diphtheria would seek immunization from their family physicians. While the doctors were entirely in sympathy with this campaign the results were slight, and the health officer's advisory committee now presented to the

PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1925

Cass County Medical Society the proposal that free toxin-antitoxin be offered to preschool children at the health conferences and to school children in the schools. With the approval of the medical society this policy was inaugurated late in the fall.

Takeover: 1926

The emphasis during this year fell on the definite increase of local health budgets to provide for the continuance of the child health program. The board of education assumed the salary of one more nurse, thus carrying three of the six (leaving only one on the demonstration payroll), and provided with the beginning of the school year 1926–1927 the full salary of a supervisor of health education. Miss Mary L. Beal of Lawrence, Kansas, was appointed to this position, with the arrangement that Miss Brown should remain in an advisory capacity. The school health education program was transferred to local direction at a time when the work in the elementary grades was well established on a routine basis, the junior high school program was waiting only final coordination, and some preliminary studies had been made for a senior high school program.

The city commission moved more cautiously toward the assumption of its full share of the proposed permanent program. It added to the board of health budget a sum sufficient to employ a dairy and food inspector (a sanitary inspector was already on the payroll) and to provide an automobile for his use. As no appointment was made to this position, however, the gain was only on paper.

PUBLIC HEALTH STAFF PAID BY DEMONSTRATION—END OF 1926

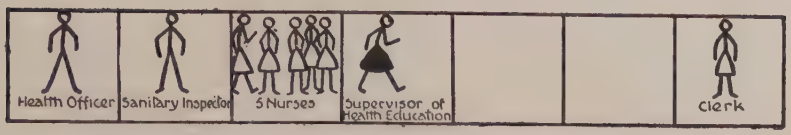
The Dentist Arrives

Only one major innovation marked the final year of the demonstration, 1927. Dr. Richard C. Leonard, of Ossian, Indiana, took office in April as public health dentist. His program tallied closely with the suggestions of the Fargo-Moorhead Dental Club, which had been formulated thus:

> To conduct an annual survey of the mouth conditions of school children; to do corrective work for those children who upon careful examination are found to be unable to obtain necessary dental care; and to sponsor educational activities pertaining to mouth hygiene and early dental supervision that will tend to promote a greater appreciation of the need of adequate dental care for children.

Dr. Leonard's first task was to make a dental survey in the schools; 2739 children in the grades of both public and parochial schools were examined before the schools closed. In June the dental apparatus furnished by the Red Cross was set up at demonstration headquarters and the dentist began prophylactic and reparative work for children referred by the nurses as being unable to afford paid service.

In the schools the product of four years' experimentation in methods of health teaching took shape in the course of study for the first six grades, prepared by the committee appointed in 1925. The course, which has been put in operation for a year of trial and observation, will be analyzed by Miss Brown in a later pamphlet in this series. As a step toward conserving health interest in the face of the rapid turnover among teachers, the staff gave two short courses in health education to extension students of the Minnesota State Teachers College at Moorhead, one in the spring term and one in the summer.



PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1926

A definite evaluation of the public health progress of Fargo was made by Dr. W. F. Walker, field director of the American Public Health Association, who came to Fargo early in the year to rate the health work of the community by use of the City Appraisal Form prepared by the Committee on Administrative Practice. This study[5] showed that from 1922 to 1926 the Fargo rating had advanced from 320 to 814 points out of a possible 1000.

Group Contacts

Naturally no mere catalog of services rendered can fully indicate the extent to which the demonstration staff, during these five years, entered into mutually helpful relationships with Fargo organizations and institutions. Some of the more formal contacts of this sort, in addition to those incidentally mentioned elsewhere in this report, may be rapidly listed. The staff physician gave routine pediatric service at the Florence Crittenton Home and also examined annually for three years the children in the St. Johns Orphanage. He lectured to the nurses in training at both of the local hospitals. Medical examinations of the farm boys and girls who came to Fargo from all over the state for an annual Achievement Club Institute, and, in 1927, of the boys about to enter the Boy Scout summer camp, helped to win wider recognition of the value of such health supervision. Nurses assisted in the examination of babies at the State Fair, helped

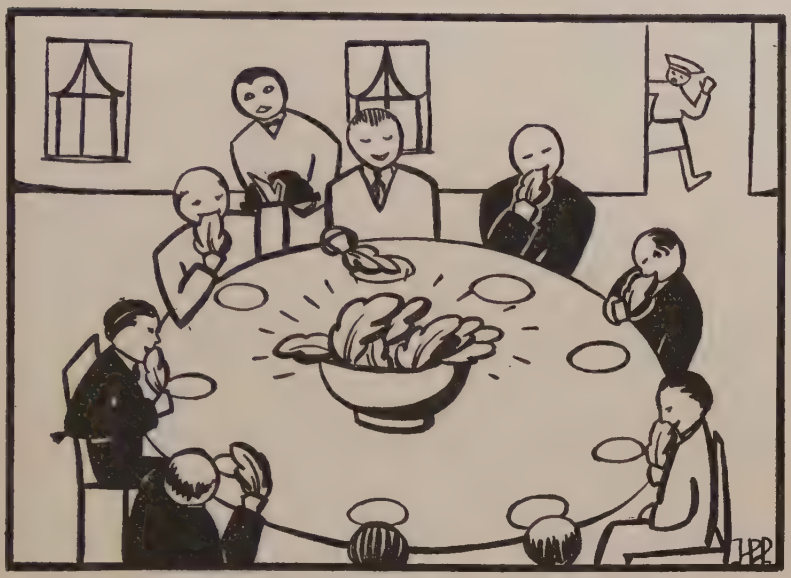
[5] Reported in detail in *A Survey of Public Health Work in Fargo, N. D.* (Child Health Demonstration Committee Bulletin No. 5). See also pp. 63–84 of this volume. A further survey has been planned for the work of the year 1928.

a local department store to arrange educational exhibits relating to baby care, and gave instruction in child care to the Camp Fire Girls, the Girls Friendly Society, and residents at the Florence Crittenton Home. The first two of these organizations reciprocated by making supplies for health center and nursing use. Health talks were also given to women's clubs, parent-teacher associations, and a group of telephone employes. The director and the nurses aided in a round-up of crippled children in 1927 under Rotary Club auspices, and, in 1926 and 1927, were helped by parent-teacher associations in securing the examination of children just about to enter school. While the demonstration thus endeavored to stimulate health activities in all the groups with which it came in contact, its influence was thrown most of all into developing the official activities of the board of health and board of education and building up public understanding and support of them.

Intangible as the evidence must be there are indications that not only these activities but the personal health habits of Fargo citizens have benefited as a result of the manifold contacts between the demonstration and the public. A concrete bit of testimony comes from Mr. Harry E. Reynolds, manager of a wholesale produce house:

> We have noticed a very great increase in some of the fresh vegetables particularly green carrots and head lettuce. . . . This year, I think, we have handled several times more fresh tomatoes and green carrots than ever before and had a large increase in lettuce and other fresh vegetables, although we have not sold so much cabbage as last year. This is due, I think, to a large supply of home grown cabbage, which carried well over the winter season on account of extreme cold, late spring and the supply of new cabbage has been very expensive. We also feel we have had an increase in our orange business, due to the teaching of the good qualities of fruit juice.

An elementary school principal sums up the new attitude tersely and vigorously when she says:



EVEN THE LUNCHEON CLUBS EAT SPINACH NOW

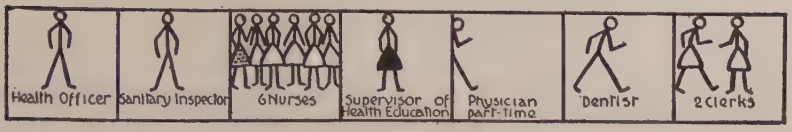
I am sure that the people of Fargo are thinking more of food and health habits than they are of the medicine bottle. . . . The great amount of knowledge that even the smallest youngsters have acquired is one of the most outstanding results of the demonstration. They know facts about foods and health habits that were unknown to their parents before health work was begun. In fact a "health conscience" has been developed.

It is naturally impossible to trace with any degree of precision the effects of the Fargo demonstration on other communities. Some immediate by-products of various services which members of the Fargo staff were invited to give in near-by communities may, however, be summarized. In Casselton and Leonard, North Dakota, and Barnesville, Minnesota, talks by demonstration workers helped to stimulate a very considerable number of immunizations against diphtheria, given for the most part by local physicians. The appointment of a full-time county nurse in Sherburne County, Minnesota, can apparently be traced to the efforts of a

school principal who had become interested in this work as a student in the extension class in health education given by the demonstration staff. The director of nursing was a factor in securing the employment of a school nurse in Jamestown, North Dakota, a county nurse in Barnes County and an educational nurse in Cass County. At the school in Glyndon, Minnesota, used as a demonstration school by the State Teachers' College in Moorhead, a program of health instruction and examination of children by a visiting nurse was instituted. The director of medical service examined school children at Lisbon, North Dakota, for two seasons; two of the Fargo nurses assisted with the examination of preschool children at Litchville. In Jamestown and Valley City, as well as at Fargo, the demonstration staff assisted in a crippled children survey.

Takeover: 1927

During 1927 the staff employed by the Child Health Demonstration Committee gradually withdrew from the activities which they had organized, leaving local personnel in full direction of the local health program. As a first step, general administrative responsibility was centered in the city health officer. The pediatrician, Dr. Evans, left Fargo in March, after completing the medical examination of all grades of the elementary schools. The health officer took over his work in the health centers. The director of health education, Miss Brown, withdrew in April, with Miss Beal well established as a supervisor in the public school system and with two Sisters, one in each of the parochial schools, specially coached to guide the health teaching in their respective institutions. Miss Tonetta Hanson, who had seen three and a half years' service in Fargo, was sent to the University of Chicago for a postgraduate training course in nursing administration and became supervisor of the per-



PUBLIC HEALTH STAFF PAID FROM LOCAL FUNDS—END OF 1927

manent staff, retaining a small nursing district of her own. The director of the demonstration was absent from Fargo in the late summer and early fall on emergency service with the American Red Cross in the Mississippi flood area, and left the city in November to assume direction of the Marion County demonstration.

By action of the city commission and the board of education in July, the remaining items on the permanent public health program of the city were provided for out of local funds. The board of education, already supporting three of the six nurses and a supervisor of health education, appropriated $1250 toward the salary of a part-time assistant to the health officer who is responsible for medical examinations in the schools, and $500 toward the salary of the public health dentist. The city commission accepted responsibility for two more nurses (one previously employed by the Tuberculosis Association and one by the demonstration), appropriated $500 toward the salary of the health officer's medical assistant, and authorized one inspector at $2500 to combine dairy, food and general sanitary inspection. The community health program for the fiscal year ending June 30, 1928, therefore called for the expenditure of $1.51 per capita. The health department's share of this was $1.06, of which only $.38 went to the isolation hospital. The board of education contributed $.41 per capita.

In the tables which follow the funds expended for public health in Fargo before and during the demonstration are classified by source. In Part III of the report (page 200) expenditures are tabulated according to their distribution among various types of service.

EXPENDITURES FOR LOCAL PUBLIC HEALTH PROGRAM AND FOR DEMONSTRATION PURPOSES

1922–1927

With budget figures for the fiscal year ending June 30, 1928

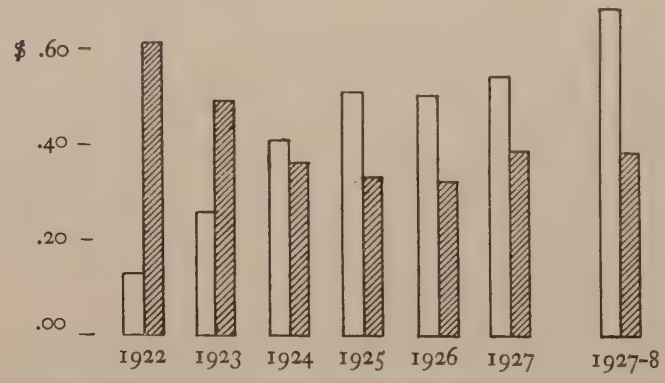
	From local funds (city commission, board of education and private agencies)	From the funds of the Fargo Child Health Demonstration Committee*
1922	$20,663	.....
1923	24,132	$38,151.65
1924	25,337	42,432.51
1925	27,954	39,279.24
1926	29,477	37,664.84
1927	36,264	32,345.16
Budget appropriations for fiscal year ending June 30, 1928		
	40,600	900.00†

* As the demonstration in Fargo was designed to exercise an educational influence throughout the United States, its expenditures are chargeable only in part to strictly local uses. Travel and conferences, special recording and analysis of data (especially during the last year) were necessary in order to develop and conserve for nation-wide use the fruits of the Fargo enterprise. The speeding up of local health progress naturally concentrated in the demonstration period developmental costs which might otherwise have been spread over a much longer term.

† Includes temporary subsidy of $500 for work of public health dentist, and special travel funds amounting to $400 for the health officer and the supervisor of health education.

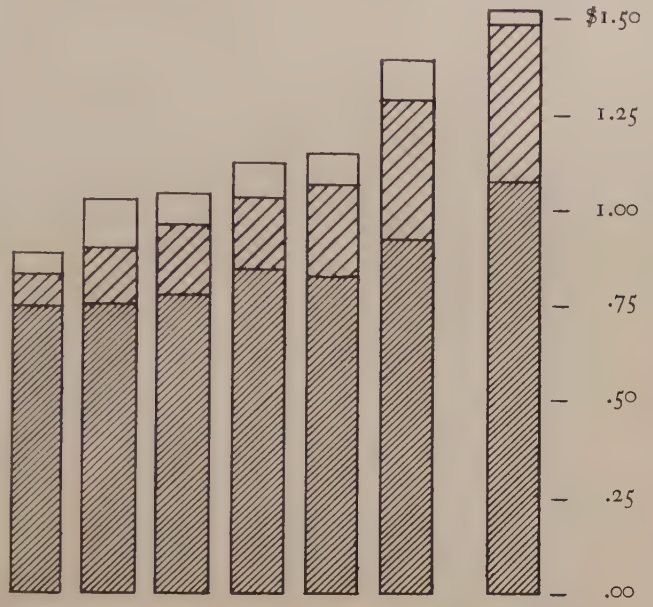
WHERE HEALTH DEPARTMENT FUNDS HAVE GONE

The white bars show the mounting share of general activities, including preventive services, as compared with expenditures for the isolation hospital (shaded bars).



PER CAPITA EXPENDITURES FROM LOCAL FUNDS FOR PUBLIC HEALTH WORK, 1922–1927

With budget figures for the fiscal year ending June 30, 1928



Narrow Shading: Health Department. Wide Shading: Board of Education. White: Private Agencies

	Total	Health Department			Board of Education	Private Agencies*
		Total	General Activities	Isolation Hospital		
1922	$ .88	$ .74	$ .13	$ .61	$ .08	$ .06
1923	1.01	.75	.26	.49	.14	.12
1924	1.03	.77	.41	.36	.18	.08
1925	1.12	.84	.51	.33	.19	.09
1926	1.14	.82	.50	.32	.24	.08
1927	1.38	.92	.54	.38	.36	.10
Budget appropriations for fiscal year ending June 30, 1928						
	1.51	1.06	.68	.38	.41	.04†

* Red Cross and Tuberculosis Association.

† This tentative figure was exceeded. Private agency expenditures for the year amounted to $.08 per capita.

Chapter III

THE PRESENT HEALTH PROGRAM IN FARGO

THE foregoing pages have sketched the development of public health work in Fargo during its period of greatest growth. The program now in operation—during the fiscal year ending June 30, 1929—is recapitulated here.

Personnel

In addition to the staff of the isolation hospital, the community set-up for public health is as follows:

A full-time health officer

Conducts all usual routine health department activities; examines infants and preschool children at health conferences; directs medical and dental examinations of school children; directs all public health nursing; administers the isolation hospital. The health officer, who is thus responsible for all public health work in the city except health instruction in the schools, is the major factor in securing unity of planning and coordination of services.

A part-time medical assistant

Assists the health officer in giving periodic medical examinations to children in public and parochial school systems.

A full-time public health dentist

Examines routinely children in public and parochial school systems, and conducts dental clinic for children needing free care.

A full-time sanitary inspector

Responsible for dairy, food, and general sanitary inspections. Aids in enforcing quarantines.

Six full-time public health nurses

One acting as supervisor. All, serving under the health officer, give nursing service in schools, health centers and homes.

A full-time supervisor of school health education

Stimulates, advises and supervises public school teachers in all grades in a continuous program of health instruction.

A public health laboratory

Provides necessary laboratory services at the joint expense of the state university and city health department.

Two clerks

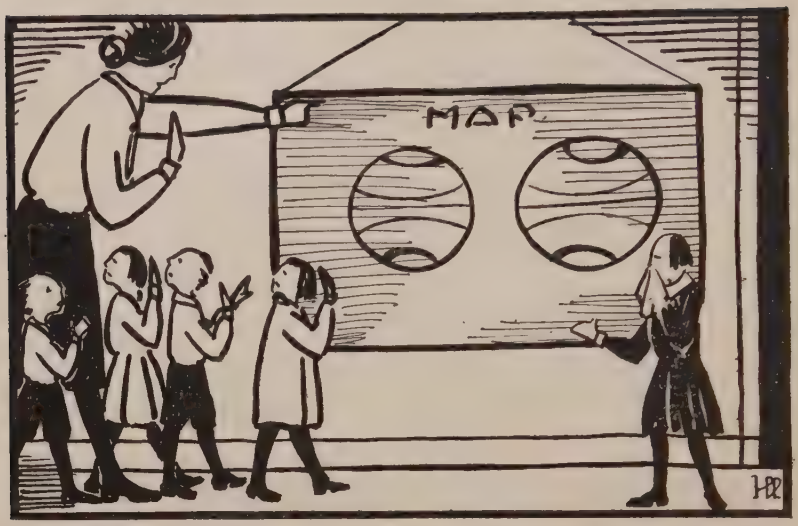
Carry office routine of health department including vital statistics and records of medical, nursing and dental services in schools.

Of the workers listed above, the health officer, the sanitary inspector, three of the nurses and one of the clerks are on the payroll of the city commission; the health officer's medical assistant is paid jointly by the city commission and the board of education; the supervisor of health education, three nurses and one clerk are on the payroll of the board of education; the public health dentist is paid partly by the board of education and partly by the Red Cross.[6]

Vital Statistics

The state law places responsibility for the collection of vital statistics on the city auditor. In order that the health officer may have full opportunity for the prompt use and necessary tabulation of such facts, birth and death certificates received by the auditor are copied by one of the health officer's clerks and are then studied and interpreted according to standard practice.

[6] In the fiscal year ending June 30, 1929, this salary is paid jointly by the board of education and city commission.



THE CHILD WITH A COLD IS PROMPTLY EXCLUDED FROM SCHOOL

Communicable Disease Control

The emphasis in the control of communicable diseases has shifted during the last five years from the isolation hospital, which prior to 1923 received the lion's share of city appropriations for health work, to the prevention of certain diseases by immunization, the systematic control of all the major communicable diseases through standard methods of reporting, epidemiological study, and quarantine, and nursing instruction in the home in measures of prevention and control.

In addition to routine procedures which need not be described in detail since they are common to all well-regulated health departments, special attention is now given in Fargo to preventing the spread of communicable disease among school children by prompt segregation of those who show suspicious symptoms. A child with a common cold or with other indications of illness is excluded if he presents himself at school, and the public health nurses routinely visit every child who is absent for two days from an unexplained cause.

A considerable number of such visits in 1927 disclosed the actual or possible presence of a communicable disease. The child who has been infected is readmitted to school only when the health officer has certified that he is no longer a danger to others.

Immunization against diphtheria and smallpox is offered to infants and preschool children who attend the health center and to older children in school. The effort to secure immunization is thus a continuous one rather than a matter of special campaigns. The well-guarded water supply of Fargo and improving standards of milk control have made it unnecessary to advise typhoid immunization.

Venereal Disease Control

No program for the public control of venereal diseases has as yet been developed in Fargo. The nurses have given some attention to following up cases under treatment by private physicians where such physicians have requested the health officer's help in persuading delinquents to complete treatment.

Tuberculosis Control

Care of the tuberculous and members of their immediate families who have been exposed to infection is a part of the routine service of the public health nurses. Aside from a limited amount of hospitalization and sputum analysis by the public health laboratory, no other organized activities specifically for the prevention or control of tuberculosis are at present maintained by the health department, though the entire child health program, with its emphasis on normal development, weighing and periodic examination, is preventive in its effect.

Prenatal Health Services

A relatively high percentage of Fargo mothers are delivered in hospitals and several obstetricians have developed private

nursing service for their patients. The public health program for expectant mothers centers, therefore, in the individual contacts of the public health nurses with mothers needing care. When such a contact is made the nurse confines herself to giving advice in the hygiene of pregnancy and urging the mother to secure as soon as possible the services of a physician, and thereafter working under the direction of the attending physician. Midwifery as a substitute for medical care is practically unknown in Fargo.

Infant and Preschool Health Services

A routine visit is made by the public health nurse to every newborn child, and nurses continue to visit many children during their first six years, to give needed instruction in cases of communicable and other illnesses, and to give consecutive help to the mother in maintaining a healthful home regime for the children. Health conferences are held twice a week by the health officer, with the assistance of the nurses. At these conferences medical examinations, together with weighing and measuring by the nurse, are offered free to all infants and children up to six, upon approval of the family physician. This is direct continuation of the health center program begun by the Red Cross in 1922 with volunteer help from various physicians and continued and developed throughout the demonstration with the staff pediatrician in charge. As has already been noted, vaccination against smallpox and immunization against diphtheria are regularly offered free to children attending the health center. The public health dentist examines the teeth of these younger children when requested to do so by the parent or nurse.

School Health Services

The health officer and a part-time medical assistant are carrying on routine examinations of children in the public

and parochial schools in the kindergarten, first, second, fourth and seventh grades, the bulk of the work being done by the medical assistant. Arrangements for the examination are made by the nurse who secures, through the teacher, health histories prepared by the parents for all children not previously examined. The records of successive examinations are filed in the school building and are accessible both to the nurses and to the teachers. The nurses assist at the examination and parents are regularly invited to be present. A dental examination is made annually of children in the first six grades of both public and parochial schools, and the public health dentist gives free treatment to children whom the nurses refer to him as being unable to pay for such treatment.

Daily inspections are made by the teachers, who refer special and doubtful cases to the nurses, each of whom visits daily each school in her district. Children are weighed and measured every six weeks by the teacher and nurse, and each weighing is made the occasion for informal health instruction based on the child's individual problems. During the greater part of the school year milk is served in the classroom twice a day. Children able to pay for it do so at a fraction of a cent more than the milk costs; children unable to pay for it, especially those who are underweight, are served free out of this slight margin of profit.

Throughout the first six grades systematic daily teaching of health habits is done by the classroom teacher under the guidance of the supervisor of health education. In the parochial schools such supervision is given by Sisters designated for this duty. In all grades above the first, children mark each morning the daily health record already described on an earlier page. This instruction follows the course of study developed by a teachers' committee during the demonstration. Formal textbook instruction in hygiene is given from the fourth grade up.

During all this part of the child's school life an informal health record, compiled by the teachers from their own observation and study of the child and from the medical and nursing records, follows him from grade to grade. This is a continuation of the practice whose beginning is described on page 30. The link between the school health service and the home is supplied chiefly through the child himself, but also through the teacher's casual or deliberate contacts with the parents and through the systematic home visiting which is done by the nurses. The teacher and the nurse join in endeavoring to secure the correction of defects discovered in the routine examinations.

The Upper Grades

Special note may be made here of the health education program now being developed in the junior high and high schools. As was said on page 41 the public school system took over at the end of the third demonstration year a fairly well established program for the elementary schools, a junior high school program in tentative form, and some preliminary studies for a high school program. The work here described, therefore, is properly to be considered a post-demonstration development.

The three junior high schools continue the health supervision (including medical examinations and nursing service) and the health instruction begun in the grades, administration being in the hands of the principal or a teachers' committee. As a means of individualizing the student's health problems, one of the schools has adopted and another is working out a plan of recording pertinent facts on an office record. The teacher assumes personal responsibility for the personal health programs of her group. Weighing and measuring, with the program of exercise and recreation, is in charge of the physical education teachers. Health instruction heads

up in the science department, personal health essentials being studied in the seventh grade and public health problems in the eighth. In two schools an elective ninth grade course in physiology and hygiene is added. The home economics courses are rich in health content, and much incidental health reference crops out in other classes. Art uses the health interest freely in poster work, and direct health information is given in connection with the courses in interior decoration and costume design. The general "activities period" once a week in one of the schools is devoted to discussion of individual health problems and current health literature and biography.

The high school program centers in the coordination of health values in the various courses. Each classroom teacher will be held responsible for the individual oversight of the health status and problems of a definite group of pupils. A cumulative record in the principal's office has been begun on the general plan of the case studies of the lower grades.

Health instruction is of three types:

A series of lectures covering the essentials of personal health, given by the physical education teachers with the assistance of the nurse, the dean of girls, the home economics instructors and the supervisor of health education.

Instruction in human biology as the last section of a course in general biology. This is an elective course taken by fifteen per cent of the pupils.

Health references inherent in other subjects, such as home economics, chemistry, and physics. Civics is particularly important since it carries a good deal of public health interest. The subjects dealing with techniques of expression draw from health as one of the major interests for expression.

Health services in the high school include nursing service as in the lower grades, though with less of the nurse's time available, and the medical examination of candidates for athletic teams. Administration of the health program is

vested in a committee of teachers appointed by the principal and headed by the supervisor of health education.

Two school swimming pools, closed in the first year of the demonstration because they were found to be insanitary, have been reopened this year after the installation of modern filtration and chlorinating plants.

Sanitation

No change has been made in the control of Fargo's water supply since 1912, when an adequate filtration plant was built. Daily bacteriological tests are made and excellent service is maintained. Increasing attention is being paid to the control of milk supplies. The principal advance made in sanitary services has been the appointment this year of a well-trained inspector whose duties include both milk and general sanitary inspections.

Laboratory

This service is also one which has not been materially altered during the past five years except as increased emphasis on sanitary and communicable disease control have led to a more intensive use of the laboratory. The technician is an employe of the state university. Free service is given the city health department in return for the payment of certain maintenance costs.

Popular Health Instruction

No systematic program of popular health instruction is at present carried on by the health officer. Occasional newspaper releases and some public speaking are relied upon to continue for the present the educational momentum which the demonstration has hitherto supplied.

SELECTED BIBLIOGRAPHY

PAMPHLETS

COMMONWEALTH FUND, *Annual Reports for 1923–1928, inclusive.*

CHILD HEALTH DEMONSTRATION COMMITTEE, *Bulletin No. 4—Demonstrating Child Health 1923–1927*, June, 1927.

CHILD HEALTH DEMONSTRATION COMMITTEE, *Bulletin No. 5—A Survey of Public Health Work in Fargo, N. D.*, by W. F. Walker, D. P. H., June, 1927.

MAGAZINE ARTICLES

CHILD HEALTH PROGRAM AT FARGO, by Dr. Burton D. Myers. *Kiwanis Magazine*, May, 1924.

THE CLASS-ROOM TEACHER'S PART IN HEALTH EDUCATION, by Maud A. Brown. *Child Health Bulletin*, November, 1925.

THE PHYSICIAN'S WAY OF SECURING THE PARENT'S CO-OPERATION, by Lester J. Evans, M.D. *Public Health Nurse*, September, 1926.

HEALTH AS A HANDMAID OF HOLINESS, by Grace Turner. *Catholic World*, April, 1927.

[7] SIMPLICITY IN HEALTH TEACHING, by Maud A. Brown. *Hygeia*, October, 1927.

[7] THE LOCAL MEDICAL SOCIETY AND PUBLIC HEALTH, by G. A. Carpenter, M.D., chairman; Kent Darrow, M.D.; and Arthur C. Morris, M.D.; Committee of the Cass County Medical Society, Fargo, N. D. *Journal of the American Medical Association*, January 21, 1928.

[7] MEASUREMENT OF NURSE POWER, by Emma A. Winslow, Ph.D. *Public Health Nurse*, October, 1927, and February, 1928.

THE HEALTH DEMONSTRATION. Comment, *Journal of the American Medical Association*, March 3, 1928.

[7] FARGO AND THE HEALTH HABITS, by Maud A. Brown. *Hygeia*, May and June, 1928.

ON THE HEALTH BANDWAGON, by Geddes Smith. *The Survey*, July 15, 1928.

SERVICE COSTS AND PROGRAM PLANNING, by Emma A. Winslow, Ph.D. *Public Health Nurse*, November, 1928.

VITAL STATISTICS AND THE MEASUREMENT OF HEALTH PROGRESS IN FARGO, N. D., by Robert E. Chaddock, Emma A. Winslow, and Carolyn A. Boudo. *American Journal of Public Health*, January, 1929.

[7] Available in reprint.

THE COMMONWEALTH FUND CHILD HEALTH DEMONSTRATIONS, by Courtenay Dinwiddie. *American Medical Association Bulletin*, November, 1928.

NEWSPAPER ARTICLES

PUBLIC HEALTH PROGRAM OF FARGO—Series of feature articles, by B. K. Kilbourne, M.D., J. G. Moore and Rev. Vincent J. Ryan. *Fargo Forum*, January 2–10, 1928.

HEALTHY FROM CRADLE TO GRAVE. Editorial, *New York Times*, September 26, 1927.

PART II

PUBLIC HEALTH WORK IN FARGO IN 1927

AN APPRAISAL BY W. F. WALKER, D.P.H.,
FIELD DIRECTOR OF THE AMERICAN
PUBLIC HEALTH ASSOCIATION

Chapter IV

PUBLIC HEALTH WORK IN FARGO IN 1927

By W. F. WALKER, D. P. H.
Field Director, American Public Health Association

FARGO has had its annual health examination. In January, 1928, at the request of Dr. B. K. Kilbourne, health officer, the public health activities of 1927 were evaluated, on the basis of the Appraisal Form for City Health Work, by the Committee on Administrative Practice of the American Public Health Association. This appraisal is the second detailed study of Fargo health services for the purpose of showing the trend of public health work, its development during the period of the child health demonstration, and the pressing present needs for further development.

The score of all the appraised activities in Fargo has risen more than 150 per cent since 1922, the year before the employment of a full-time health officer and the beginning of the demonstration. It was then 320. It now stands at 827 points out of a possible 1000. The increase over 1926 is only 13 points: it is to be expected that as the health program

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR PUBLIC HEALTH WORK IS SHOWN AT THE LEFT.

SCORE FOR PUBLIC HEALTH WORK

Maximum score allowed for the total public health program in the appraisal form, 1000 points.

Average score of 86 small cities in 1923	499
Fargo score, year before demonstration	320
Fargo score, 1927	827

approaches completeness the rate of progress will be slower each year. The actual shrinkage of staff which has accompanied the assumption of full responsibility by the community has caused a momentary sag in the intensity of certain services which should be, and no doubt soon will be, overcome by local effort.

Bringing its health work up to its present high level in the space of five years is an achievement of which Fargo may well be proud, but the present study shows many opportunities for the extension and improvement of local services which will result in increased protection for Fargo citizens as well as in improved total rating. Complacency should not be allowed to check further progress while there are still such definite needs as

Increase in immunization against diphtheria and smallpox.

Follow-up of cases of communicable disease in children, especially measles and whooping cough, to insure adequate convalescent care and periodic reexamination.

A more intensive program for the early recognition and care of tuberculosis cases and contacts.

A more stable basis for financing the dental service.

Increased supervision and control of milk and food supplies.

Provision for continued progress in community health education.

Vital Statistics

The vital statistics service, which is now a well established function of the health department, presents many interesting facts as to the community's health experience in 1927. As the city is the metropolis of the state and a hospital center, it is necessary in interpreting statistics of births and deaths to correct the figures for residence. For example, though 921 births were reported as occurring in Fargo, only 508 babies were born to resident mothers; 45 per cent of the births are those of babies in whom the community has but a transient interest. And of the 348 deaths which occurred in the city

last year, 162 or 47 per cent were those of individuals who had not obtained a legal residence in the city.

Prior to 1923 when the health department took over the responsibility for the analysis of vital statistics, neither this information nor the more pertinent facts concerning deaths from certain important causes were available to the community except as they were returned to the city by the state. Now increased public interest and the greater service of the health department insures, as far as is possible, that the information on the birth and death certificates is reliable and complete and provides for its routine analysis.

Such figures as those tabulated on the next page, over a suitable period, are the beacons by which the public health program is guided. The services for the tabulation and analysis of vital statistics in Fargo now score 56 points—93 per cent of the possible 60.

Wider community interest in and use of this material could be secured if these and other interesting facts were set forth in an annual report published in some appropriate form. Legislation to provide for a still closer relationship of the health officer to the receiving and filing of vital statistics, particularly records of birth and death, as recommended last year, is still to be secured.

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR VITAL STATISTICS IS SHOWN AT THE LEFT.

SCORE FOR VITAL STATISTICS

Maximum score allowed for vital statistics in the appraisal form, 60 points out of a total of 1000.

Average score of 86 small cities in 1923	34
Fargo score, year before demonstration	16
Fargo score, 1927	56

The following interesting facts are now readily available through the vital statistics service of the Fargo Health Department:

1. No deaths of residents occurred last year from typhoid fever, measles, whooping cough. The deaths of residents from these and other communicable diseases have been as follows:

	1920	1921	1922	1923	1924	1925	1926	1927
Typhoid and Paratyphoid	1	1	..	1	..	..	..	..
Measles . .	1	..	..	1	2	..	..	..
Whooping Cough. . .	12	..	..	2	..	..	..	..
Scarlet Fever	7	6	2	..	2	1	..	2
Diphtheria .	..	3	2	..	3	3	2	1
Smallpox .	1	..	..	..	..	..	..	..

2. The number of resident mothers dying annually from causes associated with childbirth (International List 143-150) is as follows:

1920	1921	1922	1923	1924	1925	1926	1927
2	1	2	2	3	0	3	4

3. A high percentage of the total resident births (73 per cent in 1927) occur in hospitals.

4. Deaths of persons under twenty years of age from certain preventable causes (typhoid fever, diphtheria, scarlet fever, measles, whooping cough, tuberculosis, diarrhea and enteritis, bronchitis and pneumonia) have shown a favorable decrease since 1923 as compared with the three years preceding:

	1920	1921	1922	1923	1924	1925	1926	1927
	42	27	30	16	24	11	11	12
Average		33.0				14.8		

5. A high percentage of total deaths under one year occur within the first week of life:

1923	1924	1925	1926	1927
30%	50%	58%	57%	36%

6. The infant mortality rate shows interesting but unaccountable fluctuations:

1923	1924	1925	1926	1927
39	76	39	71	43

Communicable Disease Control

The control of communicable diseases in any community is dependent upon the early recognition and prompt reporting of all communicable conditions in order that these measures shown to be useful and desirable for community protection may be carried out. Even the care of the individual patient is, to some degree, a matter of community interest and health departments therefore urge the use of antitoxin in diphtheria, Pasteur's treatment for rabies and hospitalization under special conditions in order that the number of deaths from communicable causes may be reduced. The supervision of convalescent care of communicable disease cases is also important in any community-wide effort to reduce heart disease and early tuberculosis.

The reporting of communicable diseases is of greatest value when the report leads to a definite action for community protection or for better facilities for the care of the patient. In Fargo, prior to 1923, it cannot be said that the reporting of a case set in motion any definite and well-founded procedures for the protection of the rest of the community, as is now the case. A communicable disease hospital had been built which served a very useful purpose for a few cases but without a wide and constructive program for the supervision of cases in the home and the examination and control of contacts, hospitalization could not be fully effective. With the establishment of a full-time health department, it was possible to inaugurate in the community those specific control measures which are found to be effective against certain communicable diseases, and to study just when and where cases developed in an effort to trace the connection between successive cases. Those who may have been exposed to infection are immunized or held under observation and the preventive measures which have been found effective

against smallpox and diphtheria have been offered to and accepted by a large part of the community.

With increased community interest and facilities for the diagnosis and supervision of communicable diseases, the reporting, particularly of the so-called minor contagions, measles, chickenpox, and to a degree scarlet fever and whooping cough, has become of greater value to the practicing physician and to the community in general.

The development of this service, year by year, is shown in the gradual rise of the score for this activity from 69 points in 1922 to 155 points in 1927, out of a possible total of 175.

A conception of the present problem can best be had by a review of the number of reported cases for the past four years, for which complete figures are available:

Disease	1924	1925	1926	1927
Typhoid and paratyphoid[1]	11	6	7	5
Smallpox	28	2	7	1
Diphtheria	31	25	13	1
Scarlet Fever	107	139	232	235
Measles	481	8	908	880
Chickenpox	160	190	171	261
Whooping cough	53	262	59	42
Poliomyelitis	9	10	1	5
Cerebrospinal meningitis	0	2	0	5

A study of this experience together with the local practice indicates the need of further emphasis in certain directions:

1. *Smallpox Vaccination*—In the face of a considerable incidence of smallpox (28 cases) in 1924 the community was aroused to protect itself by vaccination. In that year more than 6,300 individuals, or roughly 25 per cent of the population, were vaccinated. In the early part of 1925, interest still was high, and 2,500 additional people were vaccinated that year. A lowered incidence of the disease (only 2 cases in 1925, and 7 cases in 1926) permitted community interest to

[1] The figures for residents are: 1924–7; 1925–4; 1926–2; 1927–3.

wane and but 41 individuals were protected in 1926 by vaccination by the health department. In 1927, 148 individuals were vaccinated, bringing the total to slightly less than 9,000, or about 33 per cent of the population. A study of the records of children examined in the second grade of school shows that only 51 per cent of the rising generation is vaccinated, and this after vaccination had been urged in numerous contacts between health workers and parents. The rapid turnover of Fargo's adult population, estimated at 25 per cent a year, also serves to increase the hazard and to make an active campaign for smallpox vaccination continuously necessary.

2. *Diphtheria Immunization*—While the incidence of diphtheria shows an interesting decrease during the past four years, it should not be assumed that this is directly due to the work of immunization which has been carried on. The number of children immunized is far too small to have produced this result. In all probability not more than 2,500 individuals out of a susceptible population approaching 7,500 have been immunized. During the past year, however, a particularly successful effort was made to immunize school children with the result that about 1,300 were protected. The field of greater incidence, preschool age, has not been

COMMUNICABLE DISEASE CONTROL

Maximum score allowed for control of communicable diseases in the appraisal form, 175 points out of a total of 1000.

Average score of 86 small cities in 1923	75
Fargo score, year before demonstration	69
Fargo score, 1927	155

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR COMMUNICABLE DISEASE CONTROL IS SHOWN AT THE LEFT.

reached to the same degree; probably not more than 5 per cent of this group have been immunized. There is obvious need, then, for continuing the program of immunization against diphtheria in the school population and extending this service in the preschool age group. Concerted effort by the health department and the pediatricians of the community should readily secure a high percentage of immunization of preschool children.

3. *Scarlet Fever and Measles*—Considering the prevalence of scarlet fever and measles in the community, it seems justifiable to urge private physicians to employ the measures for preventing these diseases which have proven effective in other communities.

Venereal Disease Service

There is no program for the control of venereal diseases in Fargo. Cases coming to the attention of local physicians are reported directly to the state. The number reported annually is fairly constant; it was 131 in 1927. No public facilities for the treatment of these diseases are provided by either the health department or the hospitals, though private physicians have cared for a number of cases referred by the health officer. Reciprocally, a number of cases who have lapsed treatment with private physicians have been referred to the health officer for follow-up and subsequently returned to treatment under private supervision.

The appraisal of the venereal disease services is difficult since no record is available of the cases carried by private physicians and the number of visits per case. This and similar information is needed to arrive at any decision as to the adequacy of medical care for the local problem. Without it a relatively low score is attained in this activity. While two functions, reporting and follow-up of cases, are apparently adequately cared for and receive full credit, but one point

has been given for clinical services. It is suggested that the health department and those physicians interested, in cooperation with the medical society, canvass the situation to determine the actual number of cases under treatment by private physicians on a given census day. If the number of cases under treatment is commensurate with the number of existing cases as indicated by the reporting, there is obviously no need for other clinical services. If, however, it is found that the number of cases under treatment with private physicians is low, or there is a tendency to allow treatment to lapse after a few visits, cooperative action of the medical society and the health department should be taken to meet the situation. It is therefore specifically recommended:

(1) That a census of venereal cases under private treatment be made to show the number of cases actually engaged in treatment and the average period of treatment of each case.

(2) That an educational program with reference to treatment of venereal diseases be sponsored by the medical society and the health department.

(3) That all positive laboratory examinations for the presence of venereal diseases be reported to the health department.

The score of venereal disease control services has shown no change in the last three years, remaining at 21 points or 42 per cent of the maximum. Though not one of the most

SCORE FOR VENEREAL DISEASES

Maximum score allowed for venereal disease control in the appraisal form, 50 points out of a total rating of 1000.

Average score of 86 small cities in 1923, not comparable.

Fargo score, year before demonstration 12

Fargo score, 1927..... 21

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR VENEREAL DISEASE CONTROL IS SHOWN AT THE LEFT.

important health functions in the community, it is one which cannot be ignored.

Tuberculosis Control

The case finding survey by the National Tuberculosis Association, made in 1924, was responsible for the reporting of a large proportion of the 140 cases of tuberculosis, all forms, reported to the health department that year. This number, of course, included only residents of Fargo at that particular time. The years 1925, 1926 and 1927 show 20, 24 and 22 new cases reported respectively.

Of the 22 cases reported in 1927, 10 were normally non-residents of Fargo. Though information is not readily available, it is presumable that this proportion will also hold in preceding years, and that nearly 50 per cent of the cases reported in Fargo have only a temporary domicile in the community. If this is true, there is a considerable lag in the reporting of new cases.

CASES AND DEATHS FROM TUBERCULOSIS IN FARGO

Year	Cases	Deaths	
		Resident	Non-resident
1924	140	7	13
1925	20	13	3
1926	24	10	2
1927	22	7[2]	4

A study of the nursing records indicates that on January 1, 1927, there were 49 known cases of tuberculosis under nursing supervision: 2 of these had been known for 5 years, 23 were found in the survey of 1924, 10 were known for 3 years, 5 for 2 years, 6 for 1 year, and 3 less than 1 year. These 49 cases had 183 contacts, making a total of more than 230 individuals requiring periodic nursing and medical supervision for proper protection.

Though 50 per cent of the tuberculosis contacts and sus-

[2]Includes one resident dying away from Fargo.

pects can obtain the necessary medical service from their private physician, the remaining half are cared for only by special arrangement, as no community facilities are available.

Hospitalization of tuberculosis is secured at Dunseith, the state institution, and for a limited number of cases at a local general hospital. There is need for additional hospital beds, particularly for the cases which have not yet passed the incipient stage of the disease and for children. Since the use of the communicable disease hospital is decreasing, particularly in the summer months, it would be well to consider the possibility of using these available beds for the care of the early type of case which would have a short hospital stay and which could, if necessity requires, be sent home on short notice without serious handicap. Increased facilities, particularly for the incipient case and for children, are essential to any further advance in the tuberculosis program.

The services for Fargo score 52 per cent for 1927, which is a slight increase over the score for the preceding year, but by no means indicates a satisfactory situation. It would seem desirable for the local tuberculosis association, in conjunction with the medical society, to make a re-study of case incidence to determine the number of cases that might well be cared for in local beds or the state sanatorium and to effect

SCORE FOR TUBERCULOSIS CONTROL

Maximum score allowed for tuberculosis control in the appraisal form, 100 points out of a total of 1000.

Average score of 86 small cities in 1923	45
Fargo score, year before demonstration	8
Fargo score, 1927	52

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR TUBERCULOSIS CONTROL IS SHOWN AT THE LEFT.

a plan for more careful supervision of the contacts of known cases of tuberculosis, whether the case is living at home or has been referred to a hospital.

Prenatal Service[3]

Prenatal care is one of the outstanding health services of Fargo. The unusually high type of private medical service, together with the nursing service of the health department, has given the mothers of the community an opportunity for prenatal supervision which is unusual in cities of this size, The well equipped local hospitals have made it possible and convenient to care for a high percentage of the births in institutions—73 per cent in 1927. These services combine to give Fargo a perfect score for prenatal service in 1927.

Only about half of the mothers of Fargo, however, came in contact with this type of service and since the maternal mortality of resident mothers has, for the past few years, been high, higher in fact than would be expected with prenatal service of such quality, it would seem advisable to continue to study the maternal deaths to learn whether these mothers had the advantages of organized prenatal, medical and nursing service.

[3] Since the child health services, prenatal, infant, and preschool, are discussed at greater length in other parts of this report, the historical aspects of these services will not be considered here.

FARGO REACHED A MAXIMUM SCORE FOR PRENATAL SERVICE IN 1925.

SCORE FOR PRENATAL SERVICE

Maximum score allowed for prenatal service in the appraisal form, 75 points out of a total of 1000.

Average score of 86 small cities in 1923	29
Fargo score, year before demonstration	19
Fargo score, 1927	75

Another need indicated here is that of dental facilities for mothers who cannot afford to obtain service from their private dentists. Though this is not a large item, it is an important one, for it affects both the mother's health and the nutrition and health of the baby. Provision might be made in connection with the dental service for school children to take care of the limited number of mothers who are indigent and would require dental treatment.

Infant and Preschool Hygiene

In dealing with the health of infants, community supervision is a little more direct than in the case of the expectant mother. Shortly after a birth is reported a nurse calls at the home to leave a certificate of birth registration, and to urge regular medical supervision of the infant, either through the family physician or through the well-baby conference conducted by the health department. Every baby in Fargo receives this minimum amount of nursing advisory and educational service. The number of individuals taking advantage of the well-baby conference was 256 and these babies made 651 visits to the conference during 1927. For the further follow-up of these cases in the home, together with the initial visit, the nurses made over 2130 visits. In addition to this

SCORE FOR INFANT SERVICE

Maximum score allowed for infant service in the appraisal form, 75 points out of a total of 1000.

Average score of 86 small cities in 1923, not comparable.

Fargo score, year before demonstration	8
Fargo score, 1927	69

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR INFANT SERVICE IS SHOWN AT THE LEFT.

group of infants, 586 preschool children made 790 visits to the conference. The nursing follow-up of preschool children in the home accounted for 4617 nursing visits.

While this service appears adequate for the preschool group, probably not more than one-third of the infant and preschool population are under medical supervision from the health department. Certain physicians have, through the medium of monthly or periodic letters to mothers, sought to maintain contact and provide supervision over the first year and a half of life. This is a splendid means and opportunity for uniform teaching of all mothers with regard to infant feeding and hygiene. It is recommended that the health department, together with a committee of the medical society, prepare standardized information on these subjects to be sent by the private physicians or the health department, or by both, as seems desirable. These letters could also call attention to the importance of vaccination and diphtheria immunization at appropriate ages. The benefits of such a procedure would accrue both to the private physician and the health department.

The facilities for infant hygiene score 69 points or 92 per cent of the maximum, while the services for preschool hygiene score full credit, 100 per cent.

FARGO REACHED A MAXIMUM SCORE FOR PRESCHOOL SERVICE IN 1923.

SCORE FOR PRESCHOOL SERVICE

Maximum score allowed for preschool service in the appraisal form, 50 points out of a total of 1000.

Average score of 86 small cities in 1923	16
Fargo score, year before demonstration	26
Fargo score, 1927	50

Health of the School Child

The program for the health supervision of school children in public and parochial grade and high schools of Fargo, nearly 6000 in number, has developed gradually and soundly since its inauguration in 1922. The demonstration has served to hasten this development, and at the present time the services for school child health score 141 points out of a possible 150.

The program of physical examinations by physicians and the observation of vision, hearing, height, and weight by teacher and nurse insure the finding of defects at an early date in the child's school career. The tie-up of this medical service with the teaching of health results in the proper emphasis and the development of a sound interest on the part of the pupil. The correction of reported physical defects in Fargo compares favorably with results in other cities, though in certain items there is an apparent lag of considerable magnitude. Over 3000 children were reported to have dental defects and only 915 complete corrections were recorded. A like situation exists with regard to eye and nose and throat defects. How much these apparent discrepancies are due to incomplete records of correction is not now known.[4] Though in a few instances there may be justification for delay or indefinite postponement of the indicated correction, it is not at all likely that two-thirds or three-fourths of the cases fall into this class. The joint efforts of the health and school departments should be directed to the gradual elimination of this condition.

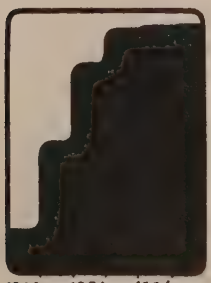
In the field of health education another discrepancy is developing which, though not embarrassing at the moment,

[4] Methods of recording corrections have been changed, and it is too soon to judge results from the present system, which calls for an annual check-up of corrections in the latter months of the school year, made by the nurses and teachers, with increased attention to routine recording of corrections as they come to the attention of the nurse.

may later become a serious factor and more difficult to correct. Though the physical examinations of public and parochial school children are done by the same agent, namely the health officer, health education is necessarily a function of the teaching staff. During the demonstration, joint supervision in public and parochial schools was provided through the director of health education. Present arrangements do not permit the supervisor of health education, employed full-time by the board of education, to give any time to the parochial schools, even though the indications are that such supervision would be welcomed. When it is considered that 12 per cent of the high school pupils receive their primary education in the parochial schools, it becomes apparent that their basic education in health should not be permitted to grow away from the program in operation in the public schools. It is suggested that the supervisor of health education be employed jointly by the board of health and the board of education in order that a small block of her time may be available for this supervision which is obviously necessary if a uniform program is to be kept intact.

Sanitation

The health department serves a very important function in supervision of those sanitary and environmental matters



FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR SCHOOL HEALTH SERVICE IS SHOWN AT THE LEFT.

SCORE FOR SCHOOL HEALTH

Maximum score allowed for school health service in the appraisal form, 150 points out of a total of 1000.

Average score of 86 small cities in 1923	66
Fargo score, year before demonstration	24
Fargo score, 1927	141

over which the individual citizen has little control. Fargo, after a bitter experience with water-borne typhoid fever a number of years ago, protected itself against future difficulties from this source by filtration and sterilization of the water supply. The use of the city water supply by practically every resident and the extension of the municipal sewage system to reach 98 per cent of the population relieves the health officer from a considerable burden of education and community stimulation with regard to these matters. The subject of general nuisances has also been suitably dealt with. The control of foodstuffs, alone, among the various items of a balanced sanitary program, has yet to receive adequate attention. The sanitary services score 125 points out of a possible 175, and of the 50 point deficiency, 48 points deal with the control of the food supply.

As a first step in the sanitary control of food distribution the licensing of food establishments should be provided for by ordinances and only those which have adequate facilities for handling and distributing foods in a sanitary manner should be permitted to operate. This, of course, applies to restaurants, bakeries, meat markets, slaughter houses, hotels, and soda fountains, as well as to dairies and milk plants.

The next procedure is to insure sound physical health, especially freedom from communicable diseases, in persons engaged in food handling. This can only be provided for through a periodic inspection and a regular physical examination either by the health department or by physicians employed by the establishment.

Finally premises must be routinely inspected for cleanliness of plant and equipment and to insure the proper sanitary processes. The inspection service should be backed up by a laboratory qualified and equipped to make food analyses of samples taken from time to time. Such are the recognized means of adequate food control.

The recent employment of a special inspector for milk and food service should go far to remedy the present shortcomings in this field. Certain legal bases for the work of this inspector, however, may have to be provided.

Some of the elements of this problem are best shown in connection with the control of the milk supply. At the present time four plants are distributing pasteurized milk in the city and supply 64 per cent of the total amount used. The other 36 per cent is supplied by from 40 to 50 individual producers distributing raw milk. It is well proven that any large percentage of unpasteurized milk in a community is a ready invitation to milk-borne epidemics of communicable diseases. That the city has not yet suffered such an experience is no guarantee that it may not do so at any moment. Though a small percentage of raw milk of exceedingly high sanitary quality may be desirable for infants in a certain type of case, there is practical agreement that this percentage need not exceed 2 per cent of the total supply. It is obvious, then, that all milk sold in Fargo should either be pasteurized or certified.

Supervision of the conditions of production and pasteurization should bring the bacterial count well within those limits considered desirable. In a community such as Fargo, where

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR SANITARY SERVICE IS SHOWN AT THE LEFT.

SCORE FOR SANITATION

Maximum score allowed for sanitary service in the appraisal form, 175 points out of a total of 1000.

Average score of 86 small cities in 1923	117
Fargo score, year before demonstration	90
Fargo score, 1927	125

the milk supply comes from a relatively short distance, reasonable cleanliness, satisfactory cooling, and proper handling ought to result in bacterial counts in the raw product well below 500,000 and in the pasteurized supply considerably below 50,000. The bacterial analysis of the raw milk in 1927 shows only between 1 and 2 per cent in excess of 500,000. However, the analyses of the pasteurized supply show that 16 per cent of the milk distributed to be in excess of 50,000 bacteria per c.c. With increased facilities for inspection and sample taking, this condition should show considerable improvement within a year.

Laboratory Service

The laboratory service which is a joint function of the State University of North Dakota and the City of Fargo continues to show full score. The diagnostic service for the community is not done entirely by this laboratory; considerable work is done in the local hospitals and the laboratories of the various groups of physicians practicing in the city. Certain information from the laboratories throws interesting light upon other activities. Over 1,400 Wasserman tests were made by the laboratory of the state, either locally or at Bismarck, and by St. Luke's Hospital, and 489 gonorrheal smears were also examined at the local laboratory. It has

SCORE FOR LABORATORY

Maximum score allowed for laboratory service in the appraisal form, 70 points out of a total of 1000

Average score of 86 small cities in 1923	42
Fargo score, year before demonstration	48
Fargo score, 1927	70

FARGO REACHED A MAXIMUM SCORE FOR LABORATORY SERVICE IN 1926.

been found desirable in other states to have all positive laboratory findings of a diagnostic nature reported to the health department to be checked against reports of cases. Obviously this is a desirable thing to be considered in connection with the venereal disease program of Fargo.

Popular Health Instruction

The general educational services of Fargo for 1927 score 65 per cent of the maximum, or 13 points. With the close of the demonstration, however, and the reduction of personnel available for general community education, it seems highly probable that this service may suffer somewhat in the next year or two unless definite planning is done to carry it on. It is unquestionably the responsibility of the health department, the Tuberculosis Association, the medical society, the Chamber of Commerce and probably the board of education to cooperate in developing a satisfactory program for keeping the community informed to the point of activity with regard to important health matters. The distribution of health literature through the nurses and other sources will be carried on without difficulty. Systematic interpretive newspaper publicity, lectures, motion pictures and radio are the fields in which the cooperation of these agencies is most desirable.

FARGO'S YEARLY PROGRESS TOWARD A MAXIMUM SCORE FOR HEALTH INSTRUCTION IS SHOWN AT THE LEFT.

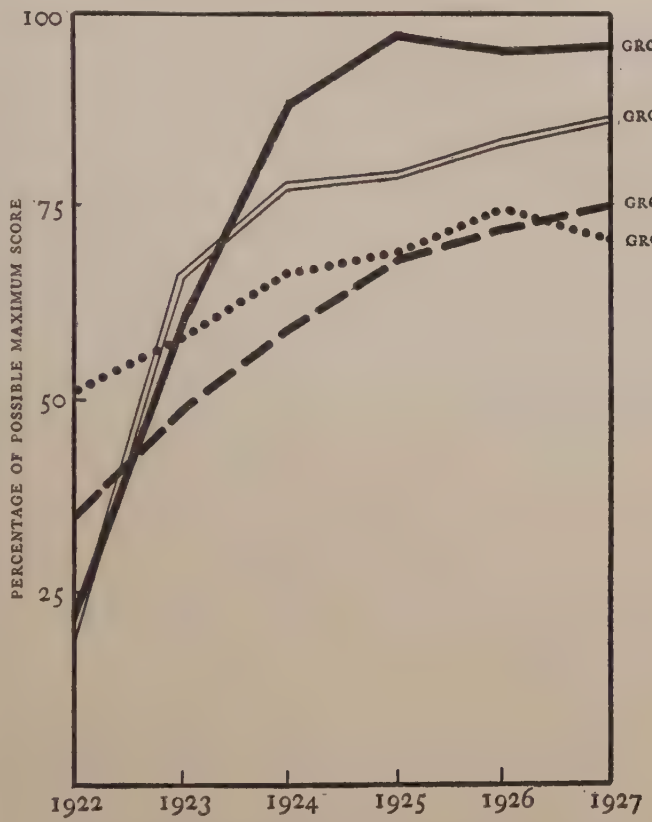
SCORE FOR HEALTH INSTRUCTION

Maximum score allowed for health instruction in the appraisal form, 20 points out of a total of 1000.

Average score of 86 small cities in 1923	4
Fargo score, year before demonstration	0
Fargo score, 1927	13

The Trend in Fargo

In order to visualize more clearly what has happened in the public health services of Fargo it may be interesting to group the eleven activities which have been discussed sepa-



TRENDS IN PUBLIC HEALTH PROGRESS IN FARGO

As rated on the appraisal form, for certain groups of services. Group 1—Sanitation, milk and food control, water supply, sewerage; Group 2—Control of communicable diseases (including tuberculosis and venereal disease) and public health laboratory; Group 3—Vital statistics and popular health instruction; Group 4—Maternal and child health.

rately in the foregoing pages into broader units. Thus sanitation may be considered as the first group; control of all communicable diseases, including tuberculosis and venereal diseases, and the closely related work of the public health laboratory, as another; vital statistics and public health instruction as the third; and all maternity and child health services as the fourth. The accompanying chart shows the improvement which has been made during the last five years in each of these four elements of a public health program. While the rate of progress has not been the same for each group it is clear that there has been a material gain all along the line. The rating of public health work in Fargo has climbed from the lower half of the scale to the upper half.

While other cities have shown comparable improvement in health administration over a longer period of years, Fargo's progress in so brief a time is a distinguished achievement. The initiative, enthusiasm, and cooperation which have accomplished this task, upon which the city is to be congratulated, should now be turned toward achieving a perfect score.

PART III

SERVING THE CHILD

A REVIEW OF CHILD HEALTH PROCEDURES SPONSORED BY THE DEMONSTRATION

Chapter V

HEALTH SERVICES FOR INFANTS AND PRESCHOOL CHILDREN

BEFORE the demonstration began there were evidences of local interest in community child health services in Fargo, in addition to the preventive services already being given by private physicians. In August, 1922, the medical society began to furnish medical personnel, on a voluntary basis, for a weekly child health conference at the Red Cross health center. The nurse employed by the Infant Welfare Society of the Red Cross (later the nursing supervisor for the child health demonstration) had already begun public health nursing service for infants and young children.

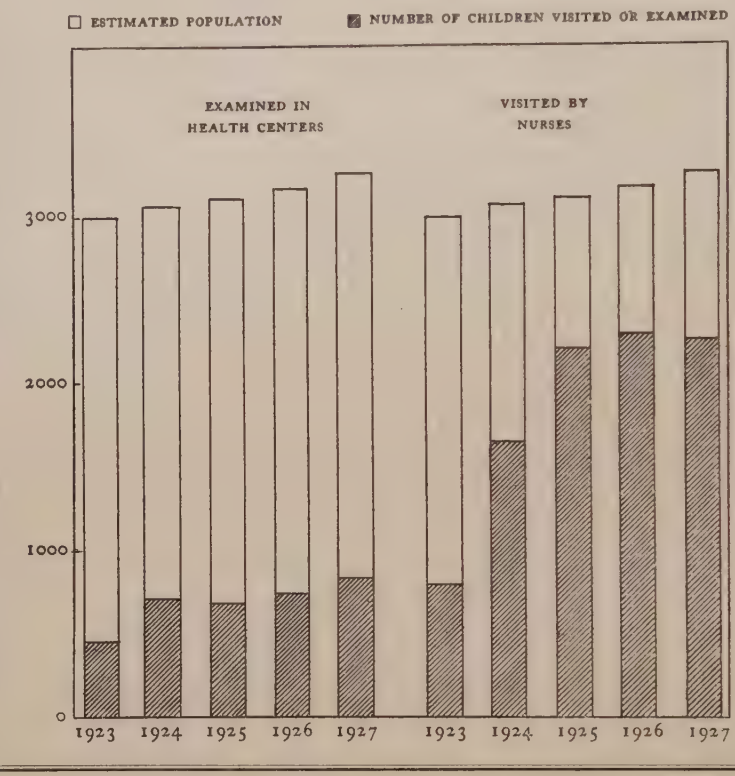
Building on these foundations the demonstration offered to children from birth to six years of age a combination of medical and nursing services, with some slight degree of dental service in 1927.[1] The transfer of health center and nursing services to the demonstration-health department staff have already been traced in Part One of this report.[2]

Medical service for this group, limited to health supervision, was given through the health center; nursing services included assistance at the health center, and visits on behalf of the health department and private physicians for health supervision, sick care, and communicable disease control to children attending the health center and other infants and preschool children.

[1] For discussion of dental service, see page 136.
[2] See pages 11 to 49.

Chart 1

NUMBER OF INFANTS AND PRESCHOOL CHILDREN REACHED BY MEDICAL EXAMINATIONS AND NURSING VISITS



Extent of Service

During the five demonstration years 2,503 children were born alive in Fargo to Fargo residents. Of these children 2,126 or 85 per cent were visited, as infants or preschool children, by a nurse, and 995 or about 40 per cent were examined by the physician at the health center. Nursing visits made to infants and preschool children born before the demonstration or elsewhere than in Fargo brought

the total of children reached by nursing visits during the period of infancy or preschool life to 4,267. Similar additions account for a total of 2,311 children examined as infants or preschool children. The total number of children reached by either nursing visit or health examination was 4,510. *Chart 1* shows the relation from year to year of the groups thus served to the total population in these age groups.

Establishing Contact

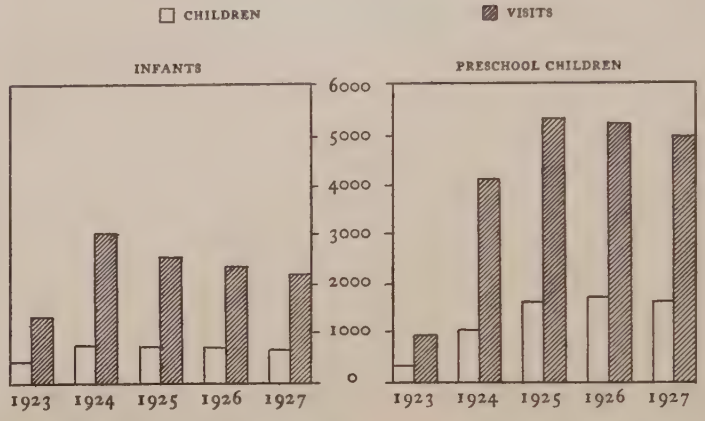
The initial contact between the demonstration and the infant was usually made by the nurse. The child came to the attention of the nurse in various ways. Often the mother had been visited during the prenatal period. As far as possible all children born in Fargo were visited soon after birth; the nurse left a birth certificate and urged the importance of health supervision by a physician. Once entered on the nurse's records, each child was kept under observation until it was clear that satisfactory health supervision had been established.

Since the nursing service was generalized, home visits to a child of any age were made to serve wherever possible as a means of bringing younger and older children in the same family under health supervision. Thus about 25 infants and 50 preschool children per year were brought under care as a result of visits primarily made to school children and about 100 children of preschool age were reached each year through calls made primarily in behalf of infants.

Certain cases were also referred to the nurses by family physicians for special care during illness. In families where there was tuberculosis or venereal disease, special nursing attention was given to preventive and remedial care of the children.

Chart 2

NUMBER OF INFANTS AND PRESCHOOL CHILDREN VISITED BY NURSE AND NUMBER OF VISITS



Nursing Service

Out of a total of 4,267 different individuals in the infant and preschool age groups visited by the nurses during the demonstration, about half (2,068) had health center care as well as nursing visits, so that health supervision was given jointly by the health center physician, the family physician, and the nurse. The other 2,199 children, who were visited by the nurse but did not attend the health center, were in most instances under the care of private physicians.

Except for the first year of the demonstration, a transition period, each nurse carried responsibility for about 125 infants and between 200 and 300 preschool children each year. Throughout the five years each infant or preschool child under care received an average of three to four home visits per year. The number of visits to each child (see

Chart 2) depended on a number of factors: the need and teachability of the family, the character of its health problems, and the degree of supervision exercised by the health center or private physician. It did not vary greatly as between the group of children seen at health center and those not seen.

Nearly all these visits were for health supervision, their content varying somewhat as they were related to health center care or that of the family physician. If the case was under health center care, much of the discussion was intended to supplement in detail the general instructions of the health center physician as to feeding, sun baths, suitable sleeping conditions, and other essentials in the health care of the child. Health center appointments were adjusted as necessary. The nurse followed up cases referred for medical treatment and saw that they reached their physician, even to the point of accompanying hesitant parents and children to the doctor's office. If the case was under the care of a private physician, health instruction and care during illness were in conformity with his advice. If there was no physician in charge, all nursing procedures were in accordance with the standing orders approved by the medical society early in the demonstration. Every effort was made in such cases to get children under health supervision as soon as possible. Health center examination was advised when other medical supervision could not be made available, or when it was requested by the physician in charge.

The Health Center

The health center was planned to serve all children. In cases where health supervision was already being given by private physicians, the health center functioned only at the request of the physician. More often its appeal was

to the large group of mothers who consulted their physicians only in case of illness and had never formed the habit of securing regular health service for their children. It thus tended to create a much wider demand for such care than had previously existed.

The health centers were originally open to all infants and preschool children, except that known cases of acute illness were sent directly to the family physician. In 1925 this policy was modified, in consultation with a committee from the medical society, to insure closer cooperation between the health center and the private practitioner. Thereafter new cases asking for health center appointments were directed to their family physician, and were admitted to the health center only with his knowledge and consent. Such an arrangement presupposes a friendly understanding of health center service by the private physician; when such an attitude exists, as in Fargo, the routine tends to confirm and strengthen it.

Health Center Attendance

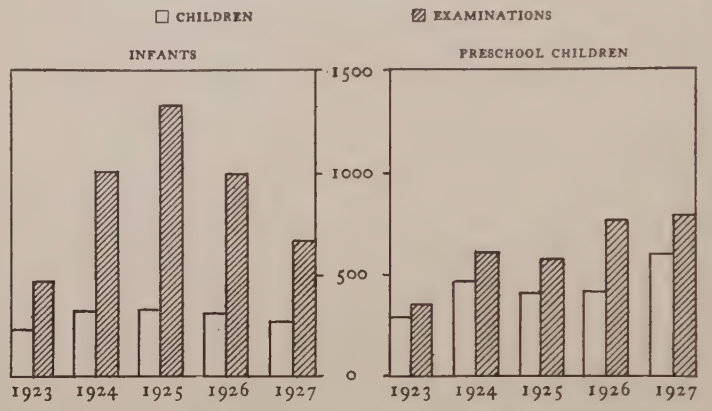
The health centers were open to children from all racial and economic groups, and the families which took advantage of the service represented the community in cross section. The nativity of parents registered at the health center corresponded closely to the racial make-up of the city as shown by the census. When the children examined were classified by the father's occupation, it appeared that more than a third were children of professional men, business proprietors and executives with annual incomes presumably in excess of $2,500. Slightly over one-third came from families in moderate circumstances in which the father was an office employe or skilled or semi-skilled wage worker, earning probably not more than $2,500. Slightly less than a third of the children had fathers who were unskilled or

casual laborers. Of these three income groups the highest tended during the five years to send a decreasing number of new cases to the health center; the intake from the middle group remained constant; that from the lowest group tended to increase. This shift may mean that families well able to afford health supervision from private physicians increasingly sought it there rather than from the health center, while those less able to pay for private service more and more realized the value of such care and accepted it when offered by the community. If so, it indicates encouraging progress toward a well-balanced health service.

A large proportion of the mothers who came to the health centers were the younger group—those with their first or second child. Of the 2,311 infants and preschool children examined during the five years, 1,199 were first brought to the health centers at less than one year of age. Nearly one half of these 1,199 infants were examined before they were three months old, about three-quarters before they were six months old, and nine-tenths before they were nine months old. The Fargo workers observed that the younger the child, the greater was usually the mother's interest in securing health supervision for it, so that in this instance at least the most desirable course was also the line of least resistance. As the demonstration went on, an increasing number of those examined as preschool children had come under health center care in infancy. There was, however, a fairly steady intake of children appearing for their first examination at more than one year of age. Of the 1,112 children in this group, slightly more appeared in their second year than at any other age. Relatively few children were first examined at four or five years of age until the last year of the demonstration, when there was a local campaign for the examination of children just about to enter school.

Chart 3

NUMBER OF INFANTS AND PRESCHOOL CHILDREN EXAMINED AT HEALTH CENTER AND NUMBER OF EXAMINATIONS



About 75 per cent of the children first examined as infants came to the health center after being visited in the home by a nurse and 25 per cent came without such preliminary contact. For children first examined during the preschool period, about 43 per cent had previously been visited by the nurse and 57 per cent made their initial contact at the health center. As the demonstration progressed, an increasing proportion of children received nursing visits before coming to the health center.

During the first year of the demonstration there was an average of two examinations for each infant examined (see *Chart 3*). The following year the average increased to three per child, and in 1925 became four per child. Intensity of service then began to decrease and in 1927, the last year of the demonstration, the average number of examinations was only slightly above two and a half per child per year.

In Fargo, as elsewhere, there was greater demand for health supervision for infants than for children a little older. The preschool children averaged not much above one examination per year. This was not regarded in Fargo as an adequate or complete schedule of health examinations for young children; mothers at the health center were urged to take their children to their own physicians, and in many cases the function of the health center was merely to initiate and not to carry through a series of periodic examinations.

Procedure

When the demonstration took over the Red Cross health center in April, 1923, the weekly conferences already established there were continued. Another center was opened at the offices of the demonstration and health department, where conferences were also held weekly to serve more conveniently the other side of town. Equipment and routines were kept as simple as possible with a view to their permanent use by the health department. Two rooms were used at each center; in one parents and children waited for the examinations and the preliminary work was done by the nurse; the other served as examining room. One nurse, later two, were present at each conference, dividing their time between the anteroom and examining room. The demonstration pediatrician had charge of the health centers from April, 1923 till May, 1927; local physicians substituted for him when he was temporarily out of the city, and the health officer took his place when he left Fargo.

After a short period of experiment it became clear that time would be conserved and a better attitude would be established if examinations were made by appointment. Thereafter examinations were scheduled at fifteen-minute intervals, and mothers with appointments were given precedence over those who came casually.

The operation of the health centers in Fargo was essentially like that of similar centers elsewhere. The nurse received the mothers and children, weighed and measured children at each visit (frequently with volunteer help from Fargo girls and college students of child care), took a history of each new case, and when possible accompanied the parent and child into the examining room.

The examination—purely clinical[3]—included eyes, ears, nose, throat, lymph glands, heart, lungs, abdomen, orthopedic and neuro-muscular condition. Children returning at monthly intervals, though they were seen by the physician at each visit, were examined only so far as seemed necessary. The findings were discussed with the mother, and she was given specific directions for the care of the child's health. Cases requiring medical attention for the correction of defects or for detailed health supervision were referred to the family physician, as well as cases requiring laboratory or more detailed clinical examination. The medical society had voiced the opinion that special examinations, such as X-ray or blood tests, might properly be suggested to the parent for consideration by the family physician. No other specific suggestions were made as to subsequent treatment, which was recognized as the responsibility of the private practitioner.

Breast feeding was emphasized for the infant and the daily schedule was built around regular hours of feeding. Artificial formulae, when used, were based on whole milk dilution with added carbohydrate, a method of preparation which was also generally used by the local physicians, so that conflict or misunderstanding was unlikely. The outline diet sheets used in the health center had been approved by the medical society and a copy was in the

[3] Laboratory services were not considered necessary in the health centers, in view of adequate facilities elsewhere in the community.

IN THE HOME THE NURSE IS A HEALTH TEACHER. THE NEXT STEP IS TO ASK, "AND WHEN ARE YOU GOING TO TAKE THE BABY TO SEE THE DOCTOR?"

WHEN MOTHERS BRING THEIR BABIES TO THE HEALTH CENTER THE PHYSICIAN DISCUSSES ALL THE BABY'S HEALTH PROBLEMS

hands of each physician. They were built up as necessary by special notations for individual children.

The diet and general health habit instructions for infants and preschool children were fundamentally in accord with those advocated in the schools. Faulty nutrition, rickets and other deficiency diseases were considered to be conditions which could and should be prevented by proper diet and hygienic living.

In the discussion with the mother, the attempt was made to give health a concrete significance, to give the mother a clear understanding of its underlying principles, and to create a feeling on the part of the parents that good health was obtainable on their own initiative. The physician's knowledge of home conditions, obtained both through the nurse and through conversation with the mother at the examination, formed the basis for an analysis of the child's health problems in relation to the whole family. The physician discussed home hygiene more or less completely with each mother, including such special problems as the overheating and underventilation of homes, and a tendency to overclothe children indoors, which resulted from the severity of Fargo's winter weather. Parents were cautioned against needless exposure of children to infections. It was not unusual in Fargo to find infants in their second year who had never had an upper respiratory infection. Smallpox and diphtheria immunizations were recommended after the sixth month. These were given either by the family physician or by the health officer, who, with the approval of the medical society, conducted a weekly immunization clinic in a room adjoining the health center.

After some experiment, a combination nursing and medical record, kept in the family folder, was finally adopted for the health center. This helped to coordinate the work of the demonstration physician and nurse by placing before

each the work of the other. Records of cases seen at the health center routinely passed over the nurse's desk. It was a decided advantage to the demonstration physician in considering each case to have available current nursing information and the data found in the family folder.

Defects and Their Treatment

The immediate objectives of these conferences were to educate the mother in the health care of her child and to stimulate the early correction of remediable defects. When necessary, the nurse made repeated efforts in her subsequent home visits to persuade the parents to act on the examining physician's advice. The family physician was routinely notified whenever one of his patients first visited the health center, and if the parents were advised to consult him he was also informed of that fact. In some cases the health center physician or a nurse supplemented this information in a personal visit to the family physician.

As far as possible, recommendations by the health center physician were in agreement with local medical practice, so that the health center and the family physician worked in harmony. Certain questions as to diseases of the eye, nose, and throat, and minor orthopedic difficulties were discussed with local physicians so that such agreement might be established. Cases of doubtful diagnosis, those requiring further examination, and those where the best policy was doubtful were uniformly referred to the family physician for decision, and his recommendation was considered final.

Medical Findings

During the demonstration period 2,311 children under six years of age—1,107 boys and 1,204 girls—were examined in the health centers by the demonstration pediatrician.

More than a quarter of these children (663) were found to have defects sufficiently serious to require medical attention, and these children were referred to their family physicians.

Since children obviously ill were not admitted to the health center the findings which are charted here relate only to apparently well children, with the exception of a few children with known or suspected abnormalities who were referred to the center by physicians, and some without regular physicians who came before seeking medical advice elsewhere. The latter were promptly referred to private physicians for care when this was needed.

In *Chart 4* the incidence of defects is shown separately for children under one, one and under two, and two to five years of age.[4] Each condition has been charted to show separately the incidence of cases sufficiently severe to be referred for medical attention and those needing only to be watched lest more serious conditions develop.

Except for unsatisfactory nutrition, the defects found in the largest number were those of nose and throat, teeth, and the genitals in boys. Enlarged and infected tonsils and associated conditions of nose and throat were most numerous in the latter part of the preschool period, and dental caries and related oral conditions increased with age. Under skin defects the largest single disease group noted was that of eczema and ammoniacal dermatitis, hence the relatively higher incidence of skin defects in the younger children. Inflammatory conditions of eyes and ears account for most of the conditions noted under these headings, though several congenital eye defects were noted at various ages. The number of inflammatory conditions, and the incidence of pathological conditions of the lungs, is small because only presumably well children were seen. Only

[4] These findings are tabulated on page 205.

Chart 4

INCIDENCE OF DEFECTS AMONG INFANTS AND PRESCHOOL CHILDREN

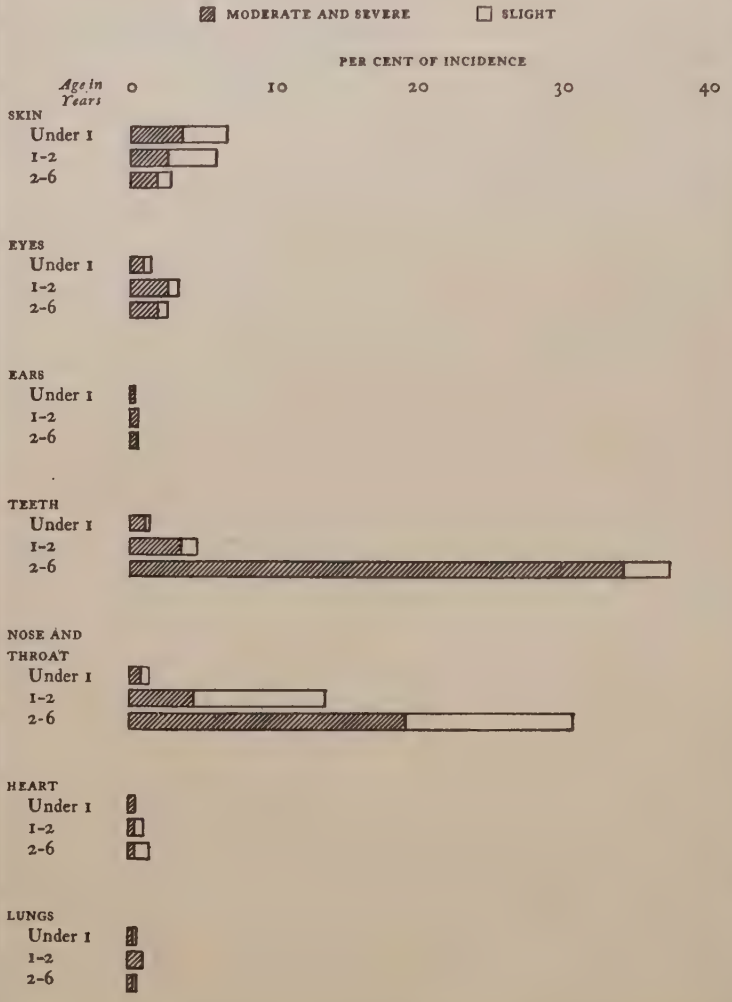
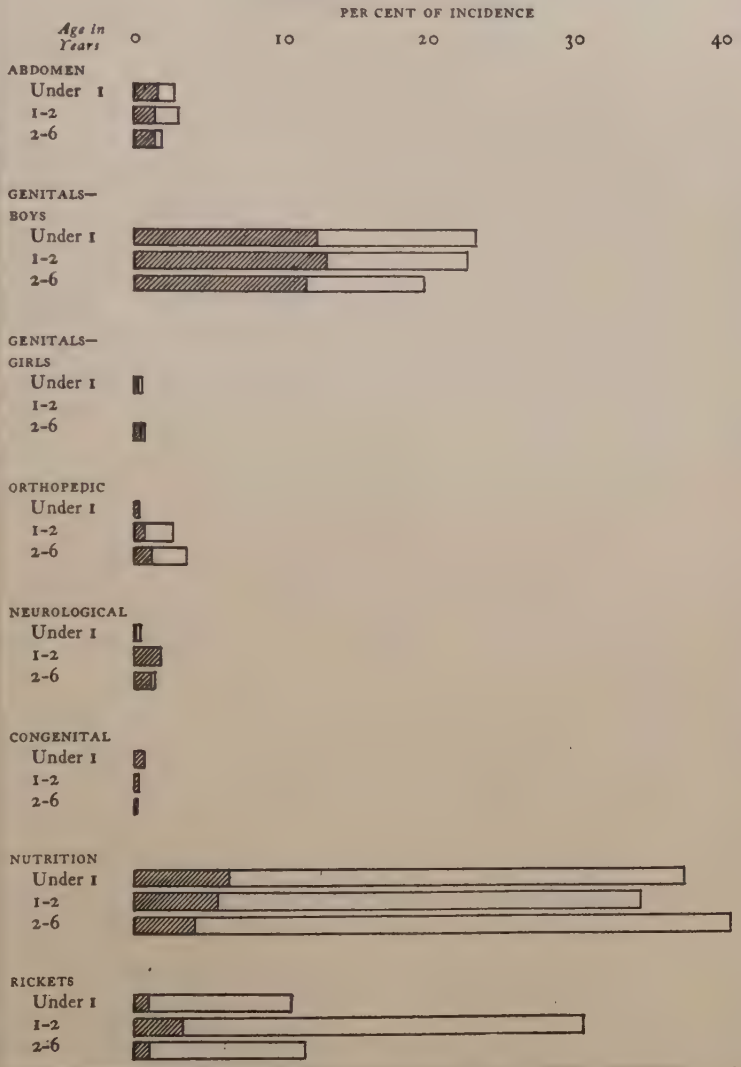


Chart 4

INCIDENCE OF DEFECTS AMONG INFANTS AND PRESCHOOL CHILDREN



one or possibly two inflammatory lesions of the heart were noted; the other lesions were congenital. A larger group of children with functional murmurs were noted for observation—these in the older groups. The neurological group is a heterogeneous one, the most numerous defects being the result of birth injuries. Flat feet and postural defects account for most of the orthopedic defects listed. The total incidence of these conditions increased with age. Umbilical hernia and a few cases of inguinal hernia appear under defects of the abdomen. "Congenital defects" are a miscellaneous group not subject to classification elsewhere.

It is interesting to note the relatively low incidence of rickets and rachitic sequelae. The exact status of many individual cases, however, could not be determined definitely because laboratory tests were not made. The figures would probably have been higher had such aids to diagnosis been available. But since few severe cases were found, it seems clear that whatever the actual extent of the disease in Fargo it was relatively mild; the fairly general use of anti-rachitic measures both by the local medical profession and by the health center was probably a factor in keeping it so.

A clinical estimate of nutrition, based on general appearance, subcutaneous fat, muscle tone, and color, without consideration of height-weight relationship or deviation from the average, was made in all cases. The percentages of incidence of unsatisfactory nutrition shown in the charts are based, however, not upon the whole group examined but on a representative group of 1,161 cases selected for special study. A scale of four grades was used in rating nutrition, and both of the lower grades—those cases noted for observation, and those referred to a physician for immediate attention—were considered unsatisfactory, though only the lowest was made up of those cases usually classified

as malnutrition. The incidence of these two unsatisfactory conditions is shown in the chart.

Permanent Program

After the demonstration the health center program was continued without interruption, conferences being held, however, only at the office of the health department. The health officer conducts the medical examinations. As he also continues to give immunizations, these two activities are united in the program of health promotion for the infant and young child.

Chapter VI

SCHOOL HEALTH SERVICES

THE preceding chapter has presented the work of the staff physician and the nurses in promoting the health of infants and preschool children. Service to school children (public and parochial alike) called into play not only physician and nurses, but also the director of health education and the teachers, and eventually the public health dentist. In the schools all the technical health services functioned together, and in the schools were found, therefore, the richest opportunities for their integration and mutual reinforcement.

Speaking broadly, the demonstration sponsored an effort to promote the health of school children in three ways: by group health instruction, for which the teacher was primarily responsible; by routine and protective services in which the teacher, the nurse, and the health officer had a share; and by individual health supervision, in which physician, dentist, teacher, and nurse played a part. Under the advice and supervision of the director of health education, the teacher became the pivot around which the whole plan revolved.

This division of the program is somewhat arbitrary. Group instruction was carefully individualized lest it become mere mass instruction. The ultimate objective of all teaching and service was the individual child and through him the family. The so-called protective services were educational, on the one hand, and touched the individual child's health problem closely on the other hand. The sum total of individual health supervision for six

thousand children is an important contribution to the health education of a community. The three phases overlap.

Yet for convenience the activities which together made up the school health service may be grouped under these three headings:

Group health instruction: Systematic daily teaching of health habits in all grades of the elementary schools; daily checking of health records; periodic weighing and measuring of all children as an educational device; the serving of milk in the classroom.

Routine and protective service: Informal daily inspection by the teacher supplemented as necessary by the nurse in daily school visits; first-aid nursing care in the schools; exclusion from school of children showing signs of communicable disease; control of readmissions by the health officer; nursing visits to children absent for two consecutive days; immunizations against diphtheria and smallpox.

Individual health supervision: Periodic medical and dental examinations of all children; health supervision visits by the nurses; the compilation of health information about individual children on the teachers' case-study sheets; the coordination of school and home to secure desirable changes in health status and health behavior.

Insofar as these activities affect the teacher's program at school, they may be grouped on a time schedule as follows:

Every day: A ten-minute period at the beginning of the morning in which health records were marked, during which an incidental health inspection was made and children were referred as necessary to the nurse for further inspection or for a home visit, or both. Reference of second-day absences to the nurse. Milk serving—mid-morning and mid-afternoon. Incidental references to health in the course of the day's teaching. Attention to the air and light of the classroom.

Frequently, but not necessarily every day: Textbook recitation in hygiene in the third and higher grades; fifty minutes a week was the statutory minimum. Informal consultation with the nurse as to specific health problems of particular children. Noting observations about individual children on the case-study sheets.

Every six weeks: Recording the child's weight and height as taken by the nurse, computing the percentage deviation from the average, and reporting to the home the child's growth, his attainment in health behavior, and his grade in "hygiene."

Once a year: Transfer of essential findings from the medical record to the case-study sheet. Transfer of summary of teacher's observations from the case-study sheet to the medical record. Dental examination of each child. In certain grades, medical examination of each child.

This rapid summary may serve to introduce the detailed discussion of health services to school children.

GROUP HEALTH INSTRUCTION

In the words of J. G. Moore, superintendent of schools, the chief aim of health education in the Fargo schools is "health behavior, with scientific knowledge of health as a contributing factor."

The Daily Health Record

The teaching of health behavior in the schools centers in the checking and discussion of the record of the child's health performance on the preceding day. Two records of daily health performance were kept during the early demonstration years—one at school and one at home.

The record[1] which was kept at school was checked during the first ten minutes of the school day. This period was very informal. The teacher, walking between the desks, noted the successes and failures recorded and gave personal advice to the child who seemed to need it. A low-voiced conference at her desk was usually sufficient to discover the reasons for failure. Constant reference was made,

[1] This record was developed in its present form in a study of the health of school children made for the Elizabeth McCormick Memorial Fund. For a specimen, and further discussion of its classroom use, see Maud A. Brown, *Fargo and the Health Habits* (Child Health Demonstration Committee, Reprint No. 8).

during this activity, to the reasons for each item of the program of health observance.

The home record (kept only during the first two years) was identical with the school record. Checked at home and returned every six weeks with the parents' signature, this record served primarily to make the family thoroughly familiar with the health program. While the point was never discussed, it soon became evident that the only way to make the child's school record and the record at home agree was to make them both truthful.

To make doubly sure that the program would secure the attention of the family, the checking of both records was at first made compulsory for promotion, but after the first semester the compulsion was quietly discontinued. Such was the friendly attitude of the community that no letting down of effort followed.

During the third year the teachers feared that the home record had become so familiar that it was losing in accuracy. An abbreviated form was worked out which carried also the weight report. For a few months great interest was manifested—then it became evident that the course of the home record had been run. The school record was continued as a permanent feature of the health program.

Health Instruction

In classroom health teaching no ready-made methods were used, no patterns set. The attention of the teacher was first directed by the supervisor to the study of the needs of the child, then to the best sources of information on general health problems. She was told that there were no accepted "best ways" of teaching health, or hygiene; that, given correct subject matter and natural motivation, good method must follow; that her original efforts at combining the two would be one of the greatest contributions

she could make to the success of the entire program. The methods which, in the opinion of each teacher, had worked to the best advantage were reported to the Course of Study Committee, and are summarized in their outline course of study.[2]

Briefly, the progressive teaching of health in Fargo begins with pure drill on the items of the daily health program, with much effort to devise ways which employ the actual neuro-muscular mechanism involved in real performance. This drill continues through all grades, developing with the subjects, chiefly language and art, which are concerned with techniques of expression. Health behavior—both individual and group—is one of the major interests of the pupil, and so furnishes the subject matter for expression through these techniques.

The most important factor is one too subtle for obvious description. It is the incidental reference to health which the good teacher is able to infuse into the various activities of the classroom, which without precept creates an impression that the desirable principles of behavior are taken for granted. Health information already presented is correlated with other subjects when both subjects profit equally. One of the few arbitrary rulings made by the supervisor in the beginning was against the use of parody of art, music or literature. From the third grade, the teaching of hygiene, or health, takes its place among the regular subjects taught from a basic text, with supplementary use of other good textbooks.

The time allotment for "health" as it now stands in the tentative program is about that of other subjects which require daily textbook recitation and preparation. It should be considered as one of the natural sciences, the application of health information to the personal health

[2] See Maud A. Brown, *Teaching Health in Fargo* (New York: Commonwealth Fund Division of Publications, 1929).

of the individual child being "laboratory work." The actual proportion of time spent on the text and on its laboratory application as worked out in Fargo is, roughly, one of text to three of laboratory. An hour a day is a fair estimate of the time needed to carry the whole program here described, including milk serving. But since this overlaps so largely on the other work of the school a considerable part of this time is otherwise accounted for in program planning.

During the working out of the program, drill on the reasons for the items of health behavior was varied and camouflaged in every way possible to keep it from wearing stale with the older children. "Fact down" matches (like "spelling down" contests) snappily conducted and not too frequently repeated, helped fill in until the slower classroom instruction in subject matter caught up. For the fifth and sixth grades the most successful drill took the form of original dramatization of health situations, sometimes reproduced before an admiring audience of Parent-Teacher Associations. While, ideally, a dramatization should be spontaneously developed, done once and not performed for an audience, the need of contact with the mothers was great and these plays formed a valuable means of inducing the mothers to swallow much sugar-coated information. In the schools which were completely platoonized these plays formed a suitable item of auditorium activity.

The actual scientific facts of public health, human physiology and hygiene used in the upper grades were presented through textbook instruction in the hygiene period with field observation and laboratory application to the child's own condition. This left room for health references in certain phases of history, civics or geography where health is intrinsic to the subject matter; and in

those subjects which are concerned with the technique of expression.

The Use of Weight

Growth was considered in Fargo as one important indication of the health status of the child. The value of its use as an educational factor depends upon the accuracy and consistency with which the weighing, recording, and reporting are done, and the sane interpretation to child and parent of the significance of weight. In Fargo methods were worked out in such a way as to avoid all the questions which are in dispute among those qualified to judge. Every safeguard for the sake of accuracy was thrown about the taking and reporting of weight, but no non-essential refinement of method was used.

Weights and heights were taken every six weeks, as this fitted in more conveniently than monthly intervals with the other record keeping of the schools. The weights were taken and recorded in quarter pounds, the heights in quarter inches. A portable measuring board did away with the difficulty of finding a place to tack the tape where the baseboard does not interfere. A scale printed by the Minnesota State Board of Health was glued to the board; it combines the scale in inches with the weight-height-age table so that the actual height and the average weight for that height and age can conveniently be read off at the same time.

The nurse took the weights and heights, the teacher recorded them. There is great advantage in such teamwork. When the child is actually confronted with his weight as a piece of evidence, the few words of encouragement or of caution from teacher or nurse, mutually reinforced, make this the most important single health event of the six weeks' period.

When systematized, the actual weighing was so brief a process that considerable time could be given to this informal exchange of comments on the pupil's record. Without conversation, a room of forty could have been weighed, measured, and recorded in from twenty to twenty-five minutes, after teamwork had become established, but it was found that another half hour taken in informal discussion with the children on the scales greatly increased the value of the occasion.

It was constantly emphasized that gain was of greater importance than percentage deviation from standard weight. This emphasis on gain was further insured by the constant use of the weight curve. Almost all rooms above the second, and several of the second-grade rooms, built individual weight graphs. Even one first-grade teacher used them with fair success. The report card carried home the growth record, and beside it, for easy comparison, the summary of the pupil's health behavior record for the six-weeks' period. With the child's first weight report in the fall of 1923 the following note was sent home:

> Your son has brought home a weight card telling you his weight and height and the average weight of boys of his height and age.
>
> In general, a child who falls too far below this average, or who fails to make some gain, will be found to have some remediable physical defect or faulty health habit.
>
> It is true also that children who are up to weight sometimes have defects and habits as serious as do those who are underweight. Children differ widely in their ability to resist unfavorable conditions. It is clearly our duty to see that every child, whatever his weight, carry out a program including the simple health essentials. If this is faithfully observed and the child persistently fails to gain, the family physician should again be consulted. . . .

In using weight as an educational method, the Fargo teachers found necessary just one safeguard—perfect hon-

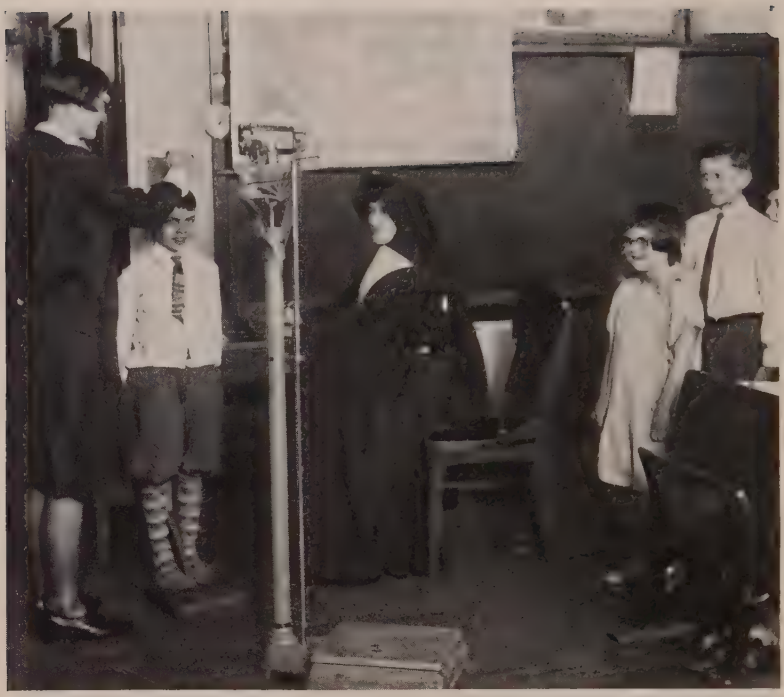
esty with the children and parents. They emphasized the fact that the child's growth is determined by so many complex factors that a child who keeps all the health rules all the time may not show as satisfactory growth as his neighbor who breaks them all. But this is relatively rare, and it is a fairly safe thing to set a child's growth curve competing with itself. While it may not compare satisfactorily with a neighbor's record, the same child's growth after a month of completely satisfactory health performance will be better than last month's in so many cases that this is a safe incentive to use.

Milk Serving

Milk was served routinely in the middle of the morning and of the afternoon. The contract was let by the Board of Education to one of the dairies passed as satisfactory by the health officer. Tickets were sold by the teacher, and furnished free to indigent underweight pupils on recommendation of the principal. The fraction of a cent between purchase price and sale price provided a margin which paid for the free milk. The use of milk in this way was urged on the basis of its necessity for normal growth of normal children. No distinction was made between underweight and up-to-weight children except in furnishing free milk, and this was understood to be an arbitrary line drawn only because of the necessity of limiting the amount of milk given free.

Observation has convinced the Fargo teachers that the drinking of milk at morning and afternoon recess "does something" which results in an obvious recuperation from school fatigue. The educational value of school milk is twofold: first, teaching children who "cannot take it" at home to drink milk and enjoy it; and, second, increased consumption of milk at home as the children educate the

MILK IS SERVED TWICE A DAY IN FARGO CLASS-
ROOMS. A LIMITED AMOUNT IS FURNISHED FREE



CHILDREN ARE WEIGHED AND MEASURED BY THE NURSE WHILE THE TEACHER KEEPS THE RECORD. A PERTINENT WORD OF HEALTH ADVICE IS THROWN IN

family as to its value and palatability. For along with the child's request at home for money for milk goes information as to its composition, the necessity of pasteurization, and its relative cheapness compared with other foods. The fact that in the first year of the demonstration period the amount of milk used in school was trebled was less significant than the statement of the proprietor of the dairy supplying the school milk that he found a surprising increase in the amount used in the homes, which amply repaid him for the low price at which he furnished milk to the schools.

As to manner of serving, there was little attempt to secure uniformity, the important thing being to get the milk down the child. The most expeditious and generally satisfactory method of serving was to have the milk brought to the individual classroom. The children sipped the milk through a straw as they worked at their desks. This achieves the end, held important by some, of having the milk taken slowly and in small sips. Other schools preferred the milk recess as an additional period of relaxation. One school where the children sat around and chatted and listened to the victrola went farthest, perhaps, in utilizing the recreational possibilities of the milk serving. Since under present schedules, however, the longest period of seat work in any grade is twenty-five minutes, and but fifteen in the primary grades, the relief aspect of the milk period is not now so important.

Physical Education

The teaching of physical training in the Fargo schools was coordinate with but independent of the work in health education. The physical education department of the public schools cooperated most effectively in the health work. Its program was focused upon big muscle activity (running, jumping, climbing, hitting) developed in free play, organized games and sports. Especial attention was given pupils

when medical examination disclosed poor nutrition or other conditions contraindicating vigorous exercise. Rest was substituted for exercise in these cases.

Every teacher of physical education was required by the supervisor of that subject to read the medical records and the teachers' case studies of the pupils each year. Their own contributions were of great value. Last year every physical education teacher graphed the posture ratings and the physician's nutrition ratings of her pupils and found a very close resemblance in the curves.

The department is well staffed with a supervisor who teaches the high-school boys, an assistant supervisor in charge of elementary work, a teacher of the high-school girls and special teachers in each junior high and platoon school. Every elementary class has a half hour period of physical exercise daily, out-of-doors unless prevented by inclement weather. This period is devoted to free play or games with a few formal exercises to unify the group interest at the start. Relaxation exercises are given between classes by the classroom teacher. No "corrective gymnastics" are attempted. The work is designed to keep the normal child in prime condition—the atypical child being referred to his physician.

The platoon schools are equipped with gymnasiums, which are included in the plans of all new buildings. The high school and one of the junior high schools have swimming pools which (after having been closed because of unsatisfactory provision for disinfection) have recently been reopened with the most approved type of filtration and chlorinating apparatus.

Home Economics

The teachers of home economics shared actively and intelligently in the health education program. Cooking and sewing are required for junior high-school girls and elec-

tive in the high school. The teachers of these subjects cooperated in covering the ground of good "home-making" courses. A special effort was made to include health essentials in the junior high-school classes.

The teaching of foods and food preparation in the home economics classes was at all times in accord with the principles of health teaching in the elementary grades. All the cooking teachers encouraged, by informal discussion and occasional checking of actual dietaries, the application of these principles in the girls' own choice of foods.

Except in the high school, pupils went home to lunch. The high-school lunch room, though not under jurisdiction of the home economics teachers, was well run. Candy was sold only to pupils who had already purchased lunch.

Personal hygiene was emphasized by the sewing teachers in its relation to clothing. The home care of the sick was taught each year in a series of eight demonstration lessons given by the nurses in both junior and senior high schools.

ROUTINE AND PROTECTIVE SERVICES

Nowhere else in the city's life are so many of the health officer's clients gathered together in one place as in the schools. This concentration works both ways: it facilitates positive health teaching for the whole group, and it creates a special hazard in communicable disease control. The previous section has dealt with the positive teaching, for which the classroom teacher is primarily responsible. Here the routine services designed primarily to safeguard the child from his fellows, and to detect in their early stages the prevailing infections of childhood, will be reviewed. The nurse occupies the central position in this field of work.

The six nursing districts were laid out around the schools. Each of the six staff nurses carried responsibility for daily oversight of the health of approximately a thousand school

children—those attending two schools, if the buildings were large, or three or four smaller ones. This service was given in the high school and junior high schools as well as in the grade schools. Each nurse visited every day the schools in her district, beginning usually with the largest. She planned to arrive at the first school twenty to thirty minutes before the morning session so that she might have time for individual conferences with teachers before school opened. From two to three hours each day were usually spent in the schools.

Daily Inspection

The teacher's part in the daily oversight of her pupils' health was focussed in the morning health inspection, which she made informally while the children were marking the health records. She was careful to make this an incidental process, while the children were intent on their own work, and comment was made confidentially so that no child's shortcomings became a matter of class attention. Any child found seriously wanting as to cleanliness or showing signs of possible illness (including common colds, according to health department ruling) was sent out of the room. If the child appeared to be sick he reported to the nurse, or if she had not reached the building, to the principal. Nurse or principal inspected the child, and if in her judgment there were indications of a communicable disease, the child was sent home and the health officer notified. If a communicable disease was actually diagnosed, the child might return to school only after securing from the health officer a "readmission slip." If a common cold was the reason for exclusion, the child was readmitted at the discretion of principal or teacher. When a communicable disease was prevalent the nurse herself made the morning inspection in each room. Minor injuries calling for first-

STUDY OF THE STRUCTURE AND GROSS MECHANISM OF THE BODY BEGINS IN THE FIFTH GRADE: THE TEACHER DISSECTS A CHICKEN

THE HEALTH OFFICER IMMUNIZING SCHOOL CHILDREN AGAINST DIPHTHERIA. FARGO OFFERS FREE TOXIN-ANTITOXIN IN HEALTH CENTER AND SCHOOL

aid were cared for by the nurse in her office at each school building. While the nurse's duties were thus clearly defined, she stood ready also to help the teacher when requested to do so by comparing notes on home conditions, by saying a word to a child whose performance of the health habits lagged or who needed corrections, and in other similar ways. Her routine service at the six-weeks' weighing period has already been noted; her assistance in medical examinations and their follow-up will be discussed in the following section.

The health officer made use of the school buildings in his campaign for smallpox and diphtheria immunizations. Emphasis was put on smallpox prevention in 1924 and 1925; free Schick testing was begun in 1925; and toxin-antitoxin clinics were held in 1926 and later. The nurses arranged with the principals for clinic space, usually in the nurse's office. The teachers notified parents of the opportunity to secure immunizations at the scheduled clinics and circulated consent slips. Children presenting themselves with authorization from their parents were immunized by the health officer, with the assistance of the nurses.[8]

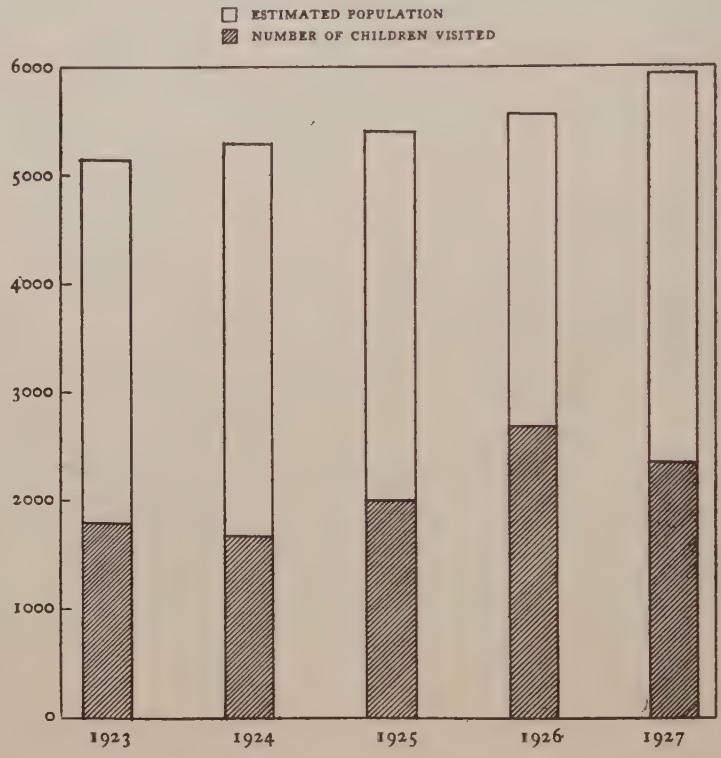
Home Visits

In addition to their routine service in the school building, which occupied about two-thirds of the total nursing time devoted to school children, the nurses made many field visits to children of school age (*Chart 5*). While it is difficult to draw a clear line between them, these visits fell roughly into two classes: those made routinely to children absent from school for two consecutive days where the cause was presumably illness; and those to children requiring nursing service for health supervision, communicable disease control or care of the sick, made as such visits

[8] For further discussion of the immunization program see page 40, Part One of this report.

Chart 5

NUMBER OF SCHOOL CHILDREN REACHED BY NURSING VISITS



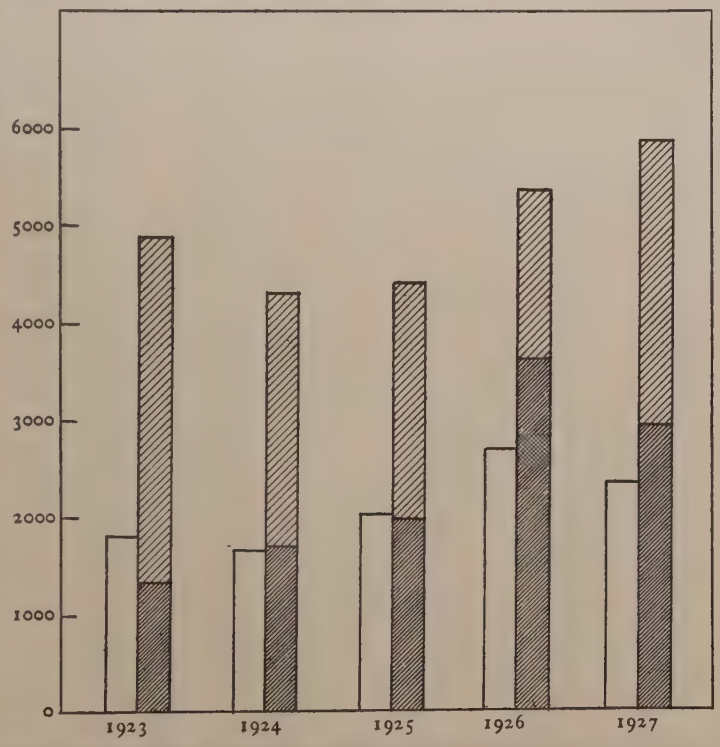
seemed to be needed. Visits of the latter type may be discussed more appropriately in the following section.

Before the demonstration began the Board of Education employed, in addition to the school nurse, a worker whose responsibility it was to follow up children absent from school. During the demonstration the home and school visitor continued to carry responsibility for investigating absences where the cause apparently was other than sick-

ness, while the public health nurses used their second-day absence calls as a means of checking up the health needs of children kept out of school by illness. Naturally in such visits the nurse also took occasion to serve the family in other ways—discussing health habits, urging immunizations, suggesting attention to uncorrected defects, and familiarizing herself with the health problems of other members of the family. The Fargo nurses considered the second-day

Chart 6

NUMBER OF SCHOOL CHILDREN VISITED BY NURSE AND NUMBER OF SECOND-DAY ABSENCE AND OTHER VISITS

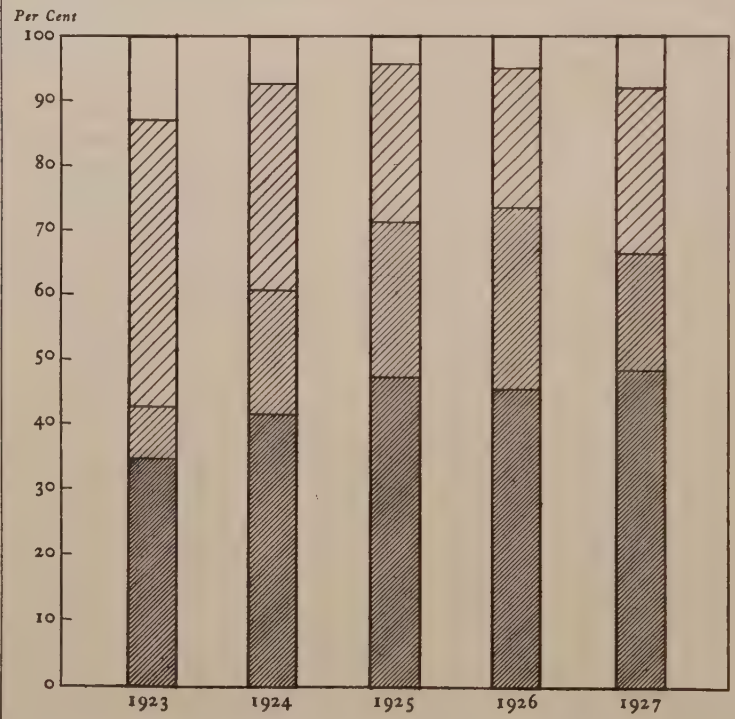


absence visit a useful mode of entrance to the home for a variety of nursing services.

These visits, as shown in *Chart 6*, increased in proportion to total nursing visits to school children until in 1926 over two-thirds of all nursing visits in this age group were for second-day absences. The proportion fell to one-half in 1927. It is clear from *Chart 7* that all but a small minority of these visits served the purpose of bringing the nurse into early contact with cases of illness. In nearly half the cases

Chart 7

CAUSES OF SECOND-DAY ABSENCES VISITED BY NURSE



the child was sick with some respiratory infection or complication. A considerable number of visits, especially in 1925 and 1926, were to cases where the child or some other member of the family was sick with a communicable disease. Other illnesses, such as digestive disturbances, skin disorders and minor infections, were found, in the later years, in about one-quarter of the cases. Cases of actual truancy (presumably handled by the school and home visitor) appeared in less than one-half of one per cent of the nurses' second-day absence visits.

INDIVIDUAL HEALTH SUPERVISION

In the foregoing sections two groups of public health activities have been sketched—the positive training which the school gave all children in the essentials of healthy living, and the protective services which were thrown around all children so that the fruits of healthy living might not be snatched away by preventable disease. It remains to trace the steps by which the special health needs of the individual child were authoritatively defined and the interest of the parent, teacher, nurse, and child himself was brought to bear upon them.

The medical examination which was offered periodically to all school children may be viewed in any of three aspects. It was, to begin with, a means of actually supervising the health and physical development of several thousand children. It was also a long-range educational device, tending to build up in both child and parent a recognition of the value of periodic health examinations which should lead to a more general desire for such service. And it was an immediate aid to the teacher—who is necessarily the central factor in influencing the school child—in individualizing the child's health problem.

If the daily health record was the foundation of health service in the Fargo schools, the medical examination was its keystone, giving unity and a distinctive outline to all other activities. It was not a mere assembling of medical information about a large group of children. The purpose of the examining physician was not to learn how many children in a given school had enlarged tonsils or poor nutrition, but to learn whether the individual John Jones or Anna Olsen had enlarged tonsils, and if so, how they affected his or her health and what could be done about it.

The school health examination offered unique opportunity for an interchange of the observations and opinions of those directly concerned with the health of the child. The examiner reviewed the reports of previous examinations or the health history of children appearing for the first time, and questioned the mother about points not fully recorded and about her own view of the child's special health problems, so that these might be borne in mind during the examination. He had also available, if they were needed to complete the picture of the child's health situation, the height and weight record as taken in the classroom, the record of nursing service to the child, his health habit record, and the teacher's case record. He was thus in a position to recommend not merely the correction of abnormalities but—often more important—essential improvements in health behavior. These suggestions, in turn, were shared with the parents, with the nurse, and with the teacher, in such a way that subsequent efforts to improve that particular child's health could be intelligently directed at the most important objectives.

Frequency of Examination

The general plan was to offer all children in the public and parochial schools the opportunity of securing a reason-

ably complete medical examination at stated intervals throughout their school life. As the program now stands in Fargo, such an examination is scheduled for the kindergarten, first, second, fourth, and seventh grades.[4] Every child was considered eligible for examination unless his parent refused in writing to permit it, except that girls above the sixth grade were examined only on written consent, or in the presence of the parent. Objections to the examination were few. Children in the grades not selected for routine examinations were also included at the request of the teacher, parent, or nurse.

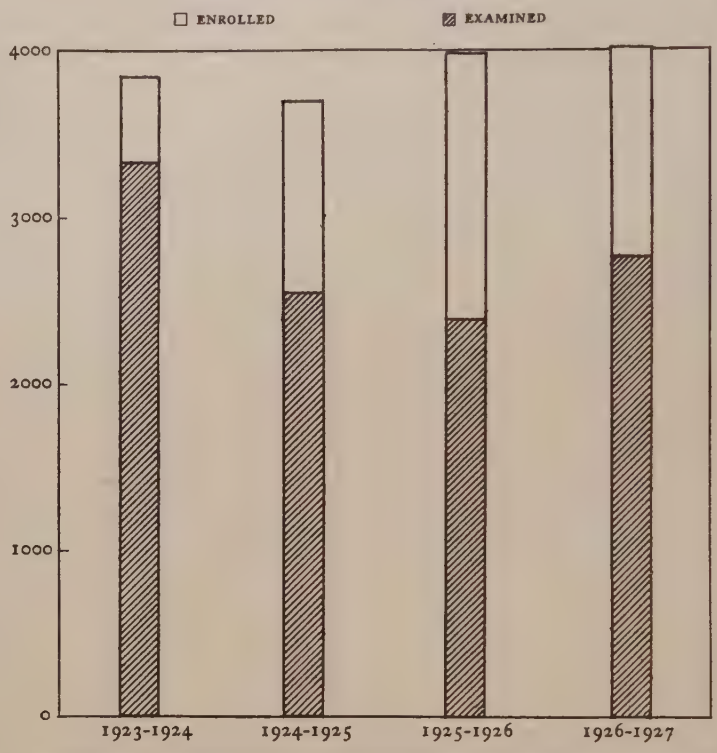
A large proportion of all children enrolled in both public and parochial schools were actually examined under this schedule (*Chart 8*). In 1923–1924 about 87 per cent of the children enrolled were examined; in the two following years about two-thirds; the permanent schedule involves the examination of about half of the total enrollment each year. About one child out of ten, in the grades not scheduled for routine examination, also presented himself because of special needs or because the child was a new entrant in the Fargo schools. A small number of children of school age were also examined each year in the health centers.

About half of all the children appearing each year for a first examination were those in the first grade or kindergarten, many of whom had been previously seen by the staff physician in the health center. In the fall of 1927, for example, 63 per cent of the children newly enrolled in the kindergarten or first grade were already known to the health department through health center service or nursing visits. Only 13 per cent of the children in the entering classes had made their first contact with health center or nurse in

[4] In the spring of 1923 the kindergarten, first, and second grades were examined; in 1923–1924 all grades through the sixth were examined routinely; in 1924–1925 and 1925–1926 the first, second, third, fifth, seventh, and ninth grades; in 1926–1927 all grades through the seventh and also the ninth.

Chart 8

NUMBER OF SCHOOL CHILDREN EXAMINED IN RELATION TO SCHOOL ENROLLMENT



the year of entering school; 17 per cent first had service in 1923, four years earlier; 13 per cent in 1924; and 10 per cent in both 1925 and 1926.

The plan now in force provides four or five examinations for each child who remains a pupil in the Fargo schools through the elementary grades and junior high school. Within the four school years covered by the demonstration period, this cycle, obviously, could be carried only half way, and the effect of the full series of scheduled examinations

CHURNING CREAM INTO BUTTER: PART OF A SECOND-GRADE HEALTH EDUCATION PROJECT

MEDICAL EXAMINATION OF SCHOOL CHILDREN. THE CHILD'S MOTHER WATCHES THE DOCTOR AT WORK

on the school population cannot be reported as yet. Among the 5,841 children examined in these four years 44 per cent were examined but once, 31 per cent twice, 17 per cent three times, and 8 per cent—476 children—four or five times.

Arrangements for Examination

From the beginning, all arrangements for the school medical examinations were made through the superintendent of schools and the principals. Letters announcing the scheduled examination were sent to parents over the superintendent's signature. The parents of children not previously examined were also furnished with a blank on which they were asked to record certain identifying data and a brief health history of the child. A vacant school room, the nurse's office, or the principal's office was used as an examining room. Twenty-five or thirty children were scheduled for examination in a half day and were called out of the classroom in small groups. A nurse was on duty throughout the examination session, and teachers or the principal occasionally visited the room when school routines permitted.

During the first school year of this regime a general invitation was extended to parents to accompany their children to the examination; in about one case out of five, in the elementary grades, the invitation was accepted. Beginning in 1924–1925, however, the teachers and nurses made this invitation much more specific; definite appointments were made with the parents; and the parents began to attend the examinations in much larger numbers. In that year and the following one more than two-thirds of the examinations of children in the elementary grades, and a quarter of those in grades seven to nine, were made in the presence of a parent. The percentage of parents present declined somewhat in the elementary grades in 1926–1927 but was still relatively high (57.5 per cent). As appears in

Chart 9

MEDICAL EXAMINATIONS WITH PARENT PRESENT, BY SCHOOL GRADE

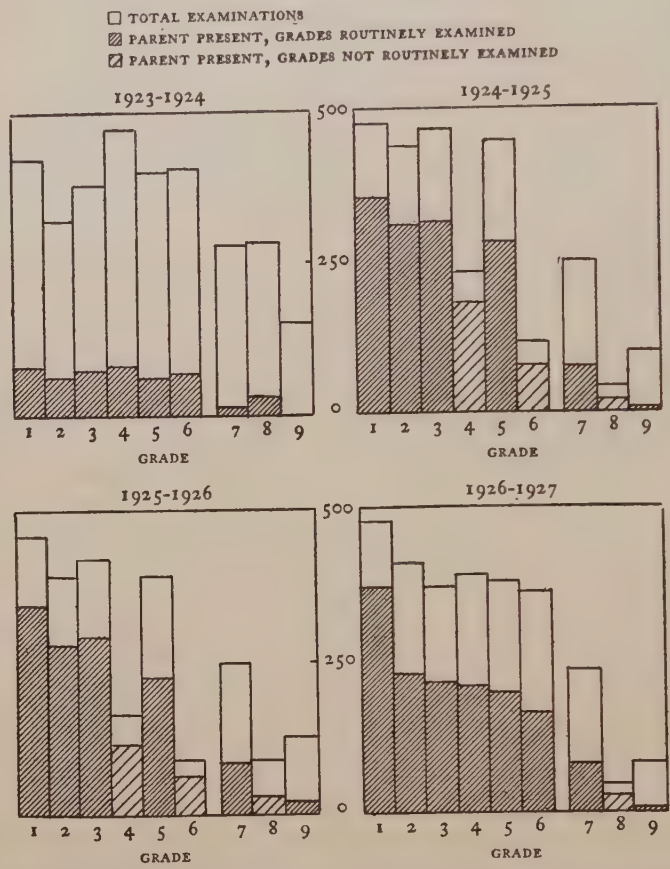


Chart 9, the younger children were much more generally accompanied by their parents than the older ones, and children coming for special examination in grades not routinely examined show the highest ratio of parents' attendance.

Examination Procedure

The first step in the examination was the testing of vision by the nurse. Mothers who were present found these tests interesting and their purport was so clear that the correction of visual defects was frequently stimulated. The child then took off his shoes and loosened his clothing preparatory to stripping to the waist for the medical examination, the mothers present often helping the nurse with the younger children.

As the examination followed established medical procedure it will not be described in detail. The child's general bearing and attitude toward the examination were observed, and routine inspection was made of skin, eyes, ears (without routine use of the otoscope), nose, mouth, throat, glands of the neck, and chest. Auscultation of the lungs was made only when indicated by the history and other physical findings. Orthopedic conditions and posture were noted. Only gross neuro-muscular abnormalities were observed, and reflexes were not routinely determined. At the end of the examination the child's nutrition was rated on the basis of subcutaneous fat, muscle tone, color, general attitude and alertness, without reference to specific defects or to weight-height ratio.

The mother, if present, had an opportunity to observe each step in this process, and at its end the physician took time to discuss the child's condition with her, to answer her questions, and to suggest the solution of health problems. Particular handicaps needing medical attention were pointed out, but no specific suggestions were made as to their treatment. The conversation might touch on the child's need of lighter underwear, more play, or fewer out-of-school engagements, on the undesirability of reading in bed, on breakfast starvation, or on the care of the six-year molar. In all ordinary cases this discussion went on in the child's presence

and the physician sought to arouse his interest as well as the mother's. The appeal to better health performance consistently carried more weight than a warning as to negative findings; the removal of diseased tonsils, when necessary, was urged not as a mere "correction," but as a step toward greater freedom from colds, better appetite, and general well-being.

Thanks to the preliminary work done by nurse and teacher it was possible for the examining physician to see from seven to eight children per hour without skimping the time required for this valuable discussion with the mothers present.

Utilizing the Results

Postponing for the moment a discussion of the medical findings of the four-year series of school examinations, it may be useful to trace the way in which the health information thus secured about the individual child was put to work. The primary record of the examination, filled out by the physician with the child before him, was filed in the principal's office at each school building, where it might be consulted at any time by the school staff.[5]

The teacher then transferred the most important findings and recommendations from the physician's record to her own case-study sheet for each individual child.[6] This informal record—a running memorandum of items of every sort that bear on the health of the child, and a cumulative report of efforts made to better his health habits and to

[5] As an additional step in coordination, in the first year of the demonstration, when the examinations in one building had been finished the staff physician and nurse met the principal and teachers in a group meeting at which the findings in general were reviewed and interpreted, and teachers were encouraged to ask questions about the status and needs of particular pupils.

[6] For a detailed description and specimen of the case-study sheet see *Fargo and the Health Habits* (Child Health Demonstration Committee Reprint No. 8), p. 10.

secure specific corrections—became the most important link between the periodic examination and the consecutive health service of the classroom. More than that, it led to an individualized understanding of the child which carried over into all the teacher's contacts with him and made for better teaching and more intelligent handling of behavior problems. As the child moved from grade to grade the case-study sheet, together with the physician's record and the scholastic record, followed him, so that the greatest possible continuity of health supervision might be secured. The detailed records of nursing visits were kept in family folders in the nursing office as part of the record of all nursing contacts with the family.

When conditions requiring medical treatment were disclosed by the examination the child was referred to the family physician or to the regular sources of free medical care.[7] Responsibility for following up the suggestion that medical care be secured, and for driving home the advice which the examining physician gave the child and mother, was thereafter shared by the nurse in her home visiting and the teacher in the classroom.

Medical Findings

Tabulation of the results of 9,411 examinations of school children in Fargo during the four school years when children were examined by the staff pediatrician makes it possible to classify these conditions referred to physicians for correction,[8] together with those of a less serious nature which were noted for observation rather than immediate treatment, and to compare their incidence in various age groups. The findings which are charted here are typical of the whole school age population, and are therefore not

[7] See p. 187.
[8] See p. 166 for a discussion of corrections.

wholly comparable with those for infants and preschool children, of whom only a limited and perhaps a somewhat selected group were examined.

As *Chart 10* indicates,[9] by far the largest group of defects referred for correction were those of the teeth. From 70 to 80 per cent of all children examined showed dental defects, though various devices were used during the early years of the demonstration to stimulate dental care,[10] a public health dental program[11] was set up in 1927, and teachers' and nurses' records indicated that a large number of children each year were going to their dentists for needed attention. It is too early to evaluate the results of the new dental program, but it is hoped that this high incidence of dental caries, malocclusion and related conditions may be sharply reduced by continued public health effort in this field.

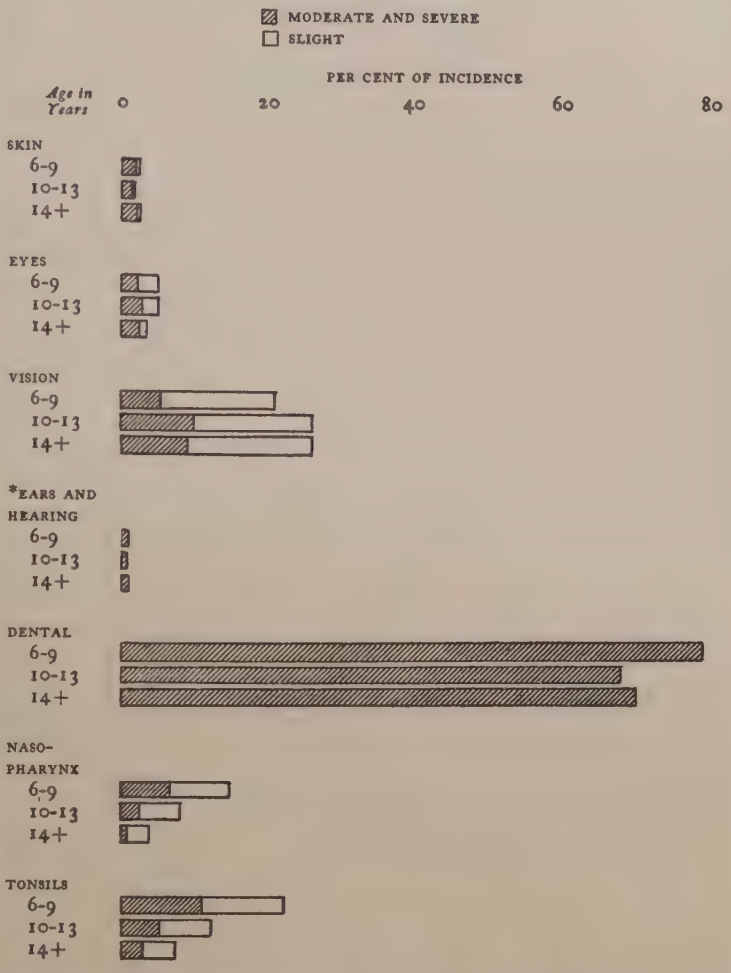
Unsatisfactory nutrition, most prevalent among the 6–9-year old boys, was found less frequently among older children and among girls. Although less than 8 per cent of the children examined were placed in the fourth or poorest group, the extent of the nutrition problem in the schools is to be judged rather by the fact that approximately half of all the children showed evidence of some deficiency.

Defects of nose and nasopharynx, especially those representing chronic infections or repeated acute infections, were frequently associated with infected tonsils; it is difficult, therefore, to classify these conditions clearly on an anatomical basis. Definitely diseased tonsils were routinely referred for medical attention, but histories of repeated upper respiratory infections, rheumatic disease, or middle ear disease were also taken into account in recommending medical treatment or further observation of tonsil conditions.

[9] These findings are tabulated on page 207.
[10] For a brief account of these experiments, see Part One of this report, p. 31.
[11] Described on page 136.

Chart 10

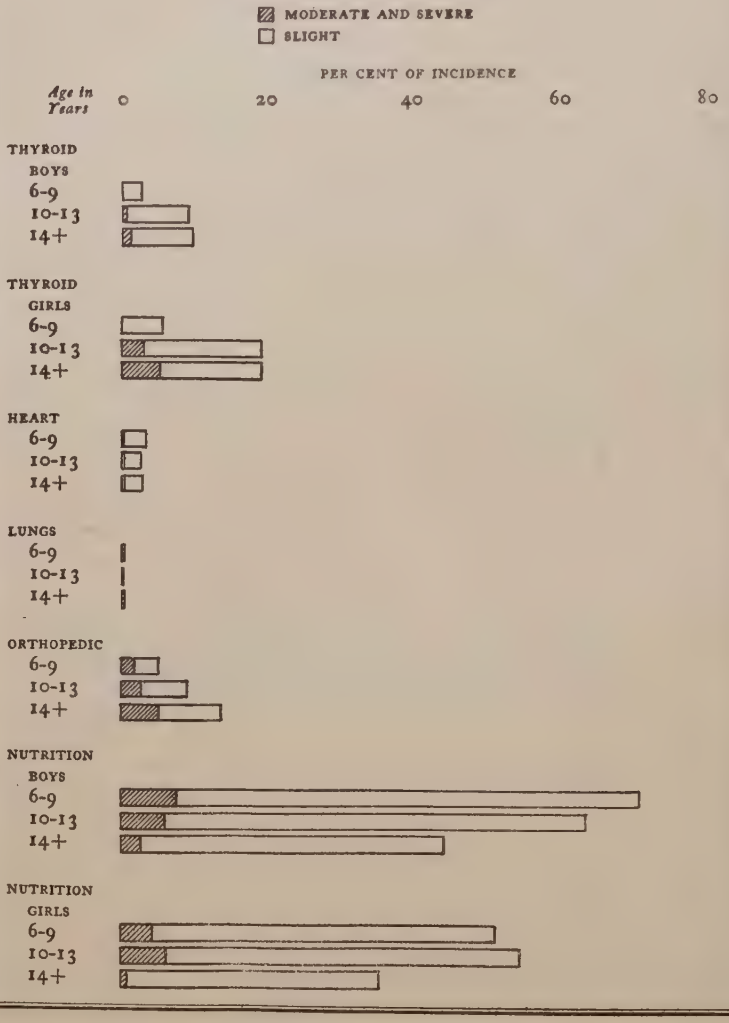
INCIDENCE OF DEFECTS IN EXAMINATIONS OF SCHOOL CHILDREN



* EAR EXAMINATIONS NOT DONE ROUTINELY

Chart 10

INCIDENCE OF DEFECTS IN EXAMINATIONS OF SCHOOL CHILDREN



The general health history was often suggestive in determining whether a certain case should simply be observed or an innocent-looking throat recommended for treatment as a matter of prophylaxis.

Very few pulmonary conditions were disclosed by this clinical examination. Children with such conditions were likely to be absent from school at the time of examination because of their illness. Routine tuberculin tests or X-ray examinations were not available in connection with the school examinations. A positive diagnosis of tuberculosis under these conditions was never made, but suspected cases, selected on the basis of general health status and recent exposure or previous contact with the active disease, were referred to their own physicians for complete study.

Organic heart disease was diagnosed in about one-half of one per cent of the cases examined. Functional heart murmurs were noted merely for observation.

From 6 to 10 per cent of all children examined were referred for correction of visual difficulties. These included cases with visual acuity of 20/40 or more as noted in the reading of the Snellen chart, and also certain cases with symptoms of eye strain, such as excessive lachrymation, blephoritis, headache, etc. Children wearing glasses were routinely advised to return to their oculists yearly. Non-visual defects of the eyes, largely infections, were referred in somewhat smaller numbers.

Among the miscellaneous skin conditions referred for medical attention, a small group, the most numerous were cases of scabies not already found and excluded from school in the teachers' and nurses' inspections. A small number of congenital lesions were likewise referred.

Spinal curvatures, flat feet, and more pronounced postural deformities account for most of the orthopedic group. The physician called attention to many incipient conditions.

Thyroid enlargement was more frequent among girls than boys, as was also the incidence of the more severe cases. Only one or two instances of toxic goiter were observed.

Coordinated Supervision: the Teacher

The medical examination, in Fargo, was at no time considered an end in itself. It was a step toward defining and realizing the individual child's opportunities for health progress. In this broad task of improving the child's health the Fargo teacher was more intimately associated with the doctor and the nurse than is usually thought possible. It was her dovetailing both ways into the work of the two technical services that bound the three together into a classroom service of more than ordinary strength. One talk with a nurse who really knew the home was often enough to supply the needed light on the problem of a difficult child. The information gleaned from the nurse by one teacher, and entered in the case-study record, was passed on to all succeeding teachers of the same child. The help was mutual, since the teacher could add to the nurse's knowledge of a particular child's behavior and could help her conserve her limited time by calling attention to special needs for home visiting.

While the official contact of the teacher and the school physician was unfortunately limited to the yearly examination, this established such friendly relationship that many telephone conferences followed during the year, and pupils were referred to the physician for reexamination at need.

Direct contact with the home was difficult for the teacher to achieve. While many teachers did gratuitously give outside time to home visits, and felt well repaid in the better understanding which resulted, this can never be suggested as among the duties of the teacher until time is allowed for

it in her schedule. But the teacher found and made use of several opportunities of consulting with the mother with a view to securing her full cooperation in promoting the child's health. Telephone calls, notes, and invitations to visit the school were often employed successfully. Invitations to specially arranged programs or to "mothers' parties" brought results so helpful that many teachers made them annual affairs. Most of all, the monthly contact at the parent-teacher's meetings over the inevitable cup of coffee provided opportunity for mutual understanding.

Reports of the child's health progress were for the most part watched for and appreciated in the home. These formal reports (in addition to the word-of-mouth comment of nurse and physician) have been mentioned in various connections but may be listed here:

1. The notice from the school physician or dentist of conditions requiring attention.
2. The notice of exclusion because of suspected infection—including colds.
3. The weight and health habit report.
4. The academic report card, which carried two marks: a grade in "health"—the teacher's lump estimate of the pupil's general progress in condition and habits, and a grade in "hygiene"—which referred to textbook work.

Coordinated Supervision: the Nurse

The nurse was the only health worker in Fargo who came regularly into contact with all parties to the task of health supervision for the school child—the staff physician and dentist, the private physician and dentist, the teacher, the parent and the child. She played a most important part, therefore, in the effort to set up satisfactory health regimes in Fargo homes and to get children with remediable handicaps into the doctor's or dentist's office for treatment. Her work in the classroom was under ordinary conditions limited

to the routines already described—periodic weighing and measuring, assistance at the medical and dental examinations and immunization clinics, and teaching child care to girls in the junior high and high schools. However, when she was able to be present during the teacher's morning inspection she sometimes answered questions for the children and frequently exchanged notes with the teacher as to the condition and progress of particular pupils. The bulk of her health supervision service was done in home visits—not only in the routine second-day absence visits already mentioned, but in many other visits at which she followed up the medical examination, repeating, interpreting, and reinforcing the doctor's advice; or studied, at the request of the teacher, the home conditions which lay behind difficult health problems in the classroom; or helped an indigent family to arrange for needed medical and dental service.

Dental Service

While the public health dental service which was set up in Fargo in the spring of 1927 was designed to become an integral part of the school health program (and, to a limited extent, of the preschool program as well) it was actually functioning during so short a period of the demonstration that it can most conveniently be described as a separate unit of work. Eventually, however, it may be expected to fit closely into the general program of health supervision which has already united the efforts of the physician, the teacher and the nurse.

The dental program planned by the local demonstration committee, in agreement with the Cass County Dental Society, and now under way, may be summed up as follows:

1. An annual dental survey of all children in the first six grades of the public and parochial schools. Defects are recorded as they are found and parents are notified when children are found to need dental care.

THE DENTIST GOES THE ROUNDS OF THE ELEMENTARY SCHOOLS ONCE A YEAR TO EXAMINE THE TEETH OF ALL THE PUPILS

NOT MANY FAMILIES COME EN MASSE TO THE DENTAL CLINIC, BUT THE PUBLIC HEALTH DENTIST IS EQUIPPED TO CARE FOR THEM WHEN THEY DO

2. Examination of preschool children at the dental clinic at the request of parent or nurse.
3. Educational work with parent-teacher associations and other civic groups looking to a wider public understanding of the need and significance of preventive dentistry and dental hygiene for children.
4. Reparative work at the dental clinic (at the office of the health department) for children referred by the nurses, on the basis of their knowledge of the family's normal and emergent financial status, as eligible for free care. A social history is compiled for each family which asks for such service and little misunderstanding or difficulty has thus far been encountered. The local dentists are entirely in sympathy with this arrangement.

Children who are found eligible for free care are excused from school to keep appointments for treatment at the dental clinic. At the first visit the dentist usually confines his work with these children to reexamination, prophylaxis, and perhaps one or more simple cement fillings. The first visit is used primarily to gain the child's confidence, which is essential to the success of later treatment. Each step in the dentist's work is explained to the child and each sitting includes an informal conversation on the care of the teeth. At subsequent sittings larger cavities are filled, and pit and fissure cavities, especially in the six-year molar, are filled or treated by the Howe silver nitrate reduction method. When feasible extractions (under local anesthesia) are left till the final visit. This program is of course subject to modification to fit individual cases and treatment of aching teeth is always given priority.

When general anesthesia is desirable the public health dentist, by previous arrangement, does the work in the office of some one of the local dentists who has nitrous oxide equipment, the local dentist volunteering his cooperation as anesthetist. Children needing X-ray examination are similarly referred to local dentists who have been

generous in offering their help. Recently a routine arrangement has been made by which children listed for tonsillectomies by the county physician at the county hospital are given a special dental examination, and needed extractions are performed by the public health dentist, after the tonsillectomy, under general anesthesia.

Whenever possible all corrective work is completed in from three to five sittings and the patient is discharged until the regular examination the following year or until the parent applies for further treatment.

Since the teaching of dental hygiene is an inseparable part of the health education program which goes on continuously in the classroom, the public health dentist is merely an additional reinforcement of the influences for good dental care which surround the child. His policy is to stress sound dental habits rather than corrective work, and he regularly instructs each clinic patient in the proper use of the toothbrush and the choice of a diet which tends to build good teeth.

In the great majority of cases children who are found in the annual school examination to need dental care are referred to their family dentists. The correction of dental defects is one of the objectives sought by the teacher in her consecutive health teaching and by the nurse in her home visits for health supervision.

Permanent Program

Under the arrangements now in force in Fargo, direction of health education in the public schools is in the hands of a full-time supervisor occupying a position in the school system comparable to the supervisors of the usual "special subjects." Supervision in the parochial schools is informally handled by Sisters specially coached for this responsibility. The nursing service, as noted on page 191, continues without

change of routines. Health examinations in public and parochial schools are now given by the health officer and by a medical assistant who is employed on part-time by the board of education and the health department jointly. Dental examinations are given by a public health dentist similarly employed on full time. The school health program has been adopted by Fargo as its own.

Chapter VII

MATERNITY SERVICE: OTHER NURSING SERVICES

THE two preceding chapters have presented the interrelated services which were given to infants and to preschool and school children as members of the age groups for whose benefit the demonstration was primarily planned. All of the activities of the medical and health education divisions, aside from general community contacts, are covered by this grouping, but the nursing division, which was at the service of the health department and was committed to a generalized program, had additional duties. The nurses offered communicable disease care, tuberculosis care, and general sick care to all the people of Fargo, regardless of age, and though the greater part of their time in each of these three fields of work went to infants and children, the intent was to meet the community needs in these directions just as far as possible. The most important service given to adults, and the most closely linked to the child health services, was the prenatal and postnatal nursing care which was offered to Fargo mothers.

Maternity Care

The public health situation with reference to maternity care in Fargo was in some respects unusual. The city is a hospital and medical center (as well as a trading center) for an area including a considerable part of North Dakota and several Minnesota counties.[1]

Nearly half the babies born in Fargo in 1927 had non-

[1] The United States Department of Commerce estimates that the population using Fargo as a trading center numbers 317,000 and occupies 11 North Dakota and 7 Minnesota counties.

resident parents. Obstetrical services are highly developed. A large proportion of the births are attended by a relatively small group of physicians, some of whom employ graduate nurses to give prenatal instruction in connection with office consultations, to assist at delivery, and to make home visits as needed for post-partum care. The percentage of hospital deliveries is high—73 per cent in 1927 for resident births alone, 84 per cent when both resident and non-resident births are counted.[2]

An informal inquiry made in 1926 showed that physicians were placing much emphasis upon getting cases under supervision early in pregnancy, and that the value of this procedure was apparently well understood through the community. In nearly one-third of all births to residents in that year the mother had received at least one medical examination before the fifth month of pregnancy. In only 6 per cent of these cases had there been no prenatal examination, and in only 16 per cent was the first examination as late as the last month before delivery.

Established community habits, and the excellent medical care which was available and freely used, made it unnecessary to attempt to organize maternity clinics under public health auspices, or to set aside any considerable part of the public health nurses' time for delivery service or for post-partum bedside care.

The objective of the nursing service in its maternity work was therefore twofold: to supplement the medical services already available by prenatal and postnatal nursing visits under the physician's direction, and to educate expectant mothers, as widely as possible, in the better practice of prenatal hygiene and in the importance of consulting the family physician as early as possible in pregnancy.

[2] See Chaddock, Winslow, and Boudo, "Vital Statistics and the Measurement of Health Progress in Fargo", *American Journal of Public Health*, January, 1929.

Extent of Service

During the five years of the demonstration 2,589 resident births were registered in Fargo; demonstration records show that nursing visits for maternity care were made in connection with 650 of these births, or 25 per cent.[3] There was a steady increase in the proportion reached annually to a peak of 36 per cent in 1925, followed by a slight tendency toward decrease.

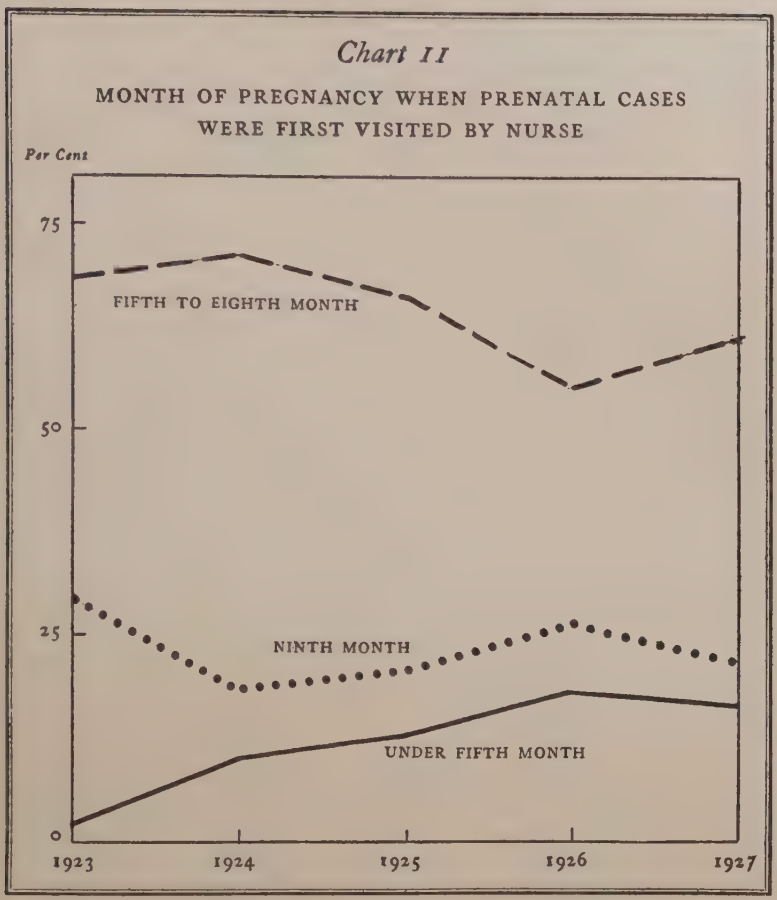
Prenatal Nursing Service

All but a small proportion (8 per cent) of the maternity cases under nursing care were first reached during the prenatal period. The effort was, of course, to reach mothers at the earliest possible stage of pregnancy. In 1923 only 2 per cent of these prenatal cases came under nursing care before the fifth month; by 1926 these early contacts had increased to about 17 per cent. In 1923 nearly one-third of the cases were reached only in the ninth month; in the later years this proportion dropped to about one-fifth. Each year about two-thirds of the prenatal cases were first visited between the fifth and eighth month of pregnancy (*Chart 11*).

While some of these expectant mothers were referred to the nurse by physicians, by far the larger number, especially those visited at an early stage of pregnancy, sought the nurse's help on their own initiative or were found by the nurse in the course of her other district work for health supervision, communicable disease control and care of the sick.

In her prenatal visits the nurse stressed constantly the importance of early and continued medical supervision, and of special dental care. She taught the mother, according to individual need, how to make the essential hygienic prep-

[3] Maternity care was also given by the nurses in 159 cases where the birth was not registered in Fargo or had not occurred during the period covered by these computations.



arations for successful maternity through dietary adjustments, exercise, rest and suitable clothing. Frequently she helped plan the layette. No blood-pressure readings were made by the nurse and specimens were secured for urinalysis only at the specific request of the physician in charge. If the mother had not yet engaged a physician, the nurse's service was governed by routines approved by the medical society soon after the demonstration was begun. When medical supervision had commenced, the nurse made further

visits only at the physician's request; and all subsequent instruction and care was under his direction.

Some attempt was made to organize nursing conferences for group instruction of expectant mothers in matters of hygiene, but there seemed to be little demand locally for this type of service, and practically all prenatal work by the nurses in Fargo has been in the form of field or office visits. As almost no births in Fargo were attended by midwives, there was little need for special attention to their training and supervision, which in many communities looms so large in health department maternity service.

During the five-year period the proportion of cases receiving but one visit tended to increase and those receiving five visits or more tended to decrease. In all years about half the cases had from two to four visits.

Delivery Service

It has already been pointed out that nursing care at delivery was given only in emergency, in view of the frequency of hospitalization and the adequate supply of private duty service from graduate and practical nurses. It is interesting to note that prenatal nursing service by the public health staff was apparently associated with a marked increase in the proportion of births occurring in hospitals. In 1923, 32 per cent of the cases visited by the nurses were subsequently delivered in hospitals; by 1927 this percentage had risen to 65. While the percentage of hospital deliveries among mothers not visited by the nurses also increased, and was at all times greater than the percentage among those visited, the rate of increase was greater in the group receiving public health service.

Postnatal Services

The major part of the nurses' service to women after childbirth was given to cases which had already been

visited in the prenatal period; 71 per cent of all the cases served had both prenatal and postnatal care. The plan was to make at least one postnatal visit to every mother who had had continued prenatal care—as soon as possible after a home delivery and soon after the patient returned to her home after a hospital delivery. At these visits the nurse gave instruction in the care of the mother and the new-born child. When the case required it, bedside care was given under the physician's direction, usually with the purpose of showing some member of the family how such care should be given. The importance of a post-partum medical examination was always urged, and the mother was strongly advised to place the child under early and regular medical supervision. The wish of the attending physician was of course the controlling factor in all these services. Some field training and supervision were also given, at their request, to practical nurses who were giving post-partum care.

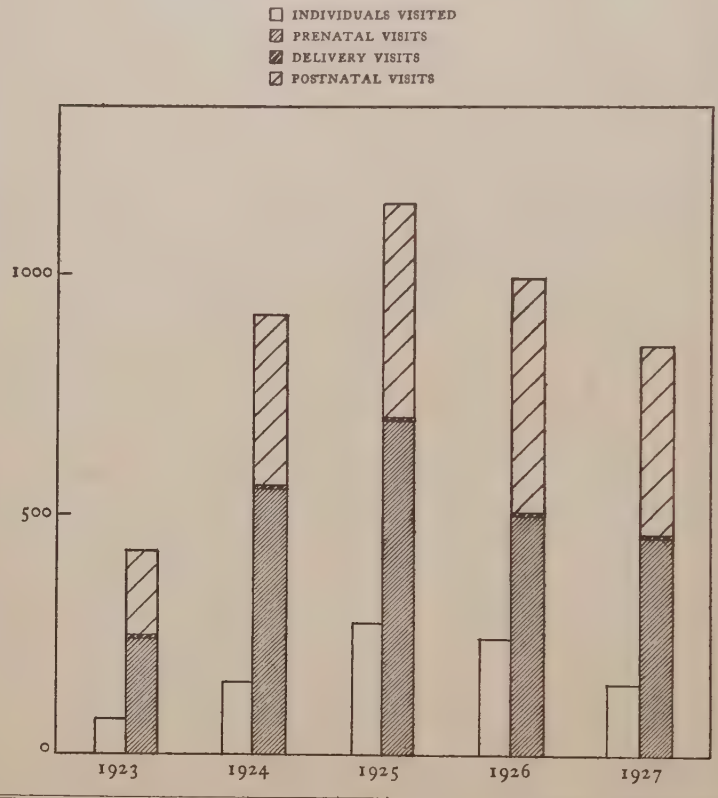
The ratio between prenatal and postnatal visits is indicated in *Chart 12*; postnatal visits tending to increase relatively until in the later years of the demonstration they were about equal in number to the prenatal visits. While the record is too brief to draw very definite conclusions, Fargo experience appears to indicate that the close relation between postnatal care and child health supervision in a generalized program tends to keep up the number of postnatal visits even when the growing assumption of public health responsibility by private physicians reduces the relative need for prenatal service.

Tuberculosis

Cases of tuberculosis currently reported to the health department were referred to the nurses, and when the National Tuberculosis Association made a case-finding

Chart 12

NUMBER OF INDIVIDUALS VISITED BY NURSE FOR MATERNITY CARE AND NUMBER OF DIFFERENT TYPES OF NURSING VISITS



study in Fargo, in 1924, the results of this study were also turned over to the nursing service, which made an effort to follow each case. Since there are no local institutional facilities in Fargo for the care of the tuberculous, and only one state sanatorium, a large majority of cases were cared for in the home. The frequency of visits depended largely on the needs of the individual: care was given only

with the consent and under the direction of the family physician. Responsibility for the care of the patient was placed so far as possible on the family, with the nurse giving supervision. Instruction was given in personal hygiene of the patient, home hygiene, and the care necessary to prevent infection in other members of the family. In dealing with contacts and suspects emphasis was placed on the need for rest, proper food, and good hygiene.

As shown on the table on page 194 the number of tuberculosis visits increased markedly during the demonstration period. About 40 per cent of these visits were made to active and suspected cases, mostly adult, though a considerable volume of service was rendered to active cases among children. All but a small percentage of the service to contacts, which increased more rapidly than that to active cases, was given to children and was closely related to consecutive health supervision.[4]

Other Communicable Disease Care

Communicable disease nursing formed part of the generalized program from the beginning of the demonstration, the nurses serving as field staff of the health officer. Cases of communicable disease reported to the health officer were immediately visited by the nurses, who gave instruction concerning isolation, concurrent disinfection, the nursing of the patient, and the final disinfection. Bedside care of the patient was given only until some responsible person could assume charge of the patient or in cases where no one else was available.

About three-quarters of these visits were made to school children: this includes second-day absence visits when the absentee had a communicable disease (see page 117). Visits

[4] A broader discussion of tuberculosis work in Fargo will be found in Part Two of this report, p. 72.

to infants and preschool children accounted for nearly one-quarter, and the proportion of visits to adults was small.

A small percentage of the communicable disease visits was devoted to the follow-up of venereal disease cases. The health department had no venereal disease clinic and practically all of the curative work was done by private physicians. The nursing staff, however, made home visits to cases reported either by the health department or by private physicians and gave instruction in personal and home hygiene.[5]

Care of the Sick

In 1923 bedside care in the home, other than that given by graduate private duty nurses or practical nurses, was unknown in Fargo. According to the standards presented in Community Health Organization,[6] about 30 persons per day in Fargo would have been expected to need public health nursing care because of illness, making a total requirement of about 10,000 visits during the 313 working days of the year—which, at the rate at which such visits were made in Fargo (2.15 per hour), would have required the full time of nearly five nurses. Such a volume of service would have been far in excess of what appeared to be the local demand.

Bedside care for all types of illness, under the direction of the physician in attendance, for adults as well as children, was offered by the Fargo nurses at the beginning of the demonstration. Fees were to be collected when possible. The physicians were notified that this service was available; parent-teacher groups, women's clubs and business men's clubs were told of it; and folders were distributed

[5] See also the detailed discussion of communicable disease control in Part Two of this report, p. 67. The low incidence of many communicable diseases in Fargo was a factor in limiting this type of nursing service.

[6] Ira V. Hiscock, *Community Health Organization* (American Public Health Association, 1927).

to explain simply how the service could be secured. But bedside care was slow in developing and after 1924 played a diminishing part in the nursing program. As they made home visits for other purposes, the nurses reported that they found little need for this type of service. Many cases were cared for in hospitals, since physicians found this more desirable for their patients and adequate facilities were available at moderate rates. It became evident, moreover, that only a relatively small amount of bedside care could be carried by the nurses in addition to the health supervision and communicable disease service which was developed on a free basis under health department auspices.

During the early years, about one-eighth of all visits for the care of the sick were to adult cases, but this proportion increased steadily until in 1926 and 1927 about half were made to adults. During the later years the number of visits for sick care and the proportion of visits so classified to children both declined sharply. This was apparently due in part to the fact that visits to children, instead of being merely for emergency care in sickness, were increasingly a part of the consecutive health supervision which the nurses gave to many Fargo families.

Chapter VIII

INDICES OF ACCOMPLISHMENT

IT was said in the introduction to this part of the Fargo report that the demonstration had three major objectives: to improve the health status of Fargo children, to convince the Fargo public that child health services were worth continuing at local expense, and to make various professional groups more aware of their opportunities to build up and conserve the health of children. It is not easy to measure the effect of the demonstration in any one of these directions.

The third is perhaps the most intangible. Some of the educational products will be touched upon in the following chapter, but the major contributions of the five-year enterprise along this line must be looked for in the relations between physicians and their patients, between teachers and their pupils, between private citizens and the health department, during the next decade.

The second objective—in so far as it means the adoption of a public health program and the appropriation of funds to support it, has measurably been attained. As was made clear in Part One of this report, the city of Fargo, by easy stages, has assumed responsibility for carrying on with little change the program and staff to which the community became accustomed between 1923 and 1927. It has raised the annual appropriation for public health (including the maintenance of the city isolation hospital) from $.88 to $1.51 per capita in order to do so. The effect of the curtailment of the nursing staff by one and the substitution of part-time for full-time pediatric service

remains to be seen. These changes, however, do not appear to threaten seriously the net gain of the community in changing from part-time to full-time health department administration, from two nurses to six, and in adding the services of a supervisor of health education, a public health dentist, and a small clerical staff.

It remains true, as a further limitation on the immediate measurement of results in this direction, that until appropriations have become habitual over a long period of years, and until public interest has proved itself through such crises as are certain to arise in any municipal enterprise of this sort, it is impossible to gauge the depth and firmness of the interest which Fargo undoubtedly shows at present in its newly developed health work. Another factor to be kept in mind is the great importance of unity and coherence of program. Such teamwork as the demonstration tried to practice, and even the specific methods of integration which are discussed in the following chapter, are not produced automatically: they depend on the workers rather than the plan of work. Without them the largest and best-supported staff may fall short of its opportunities; with them a hard-pressed handful of workers can accomplish surprising results. Only time will show how completely Fargo has assimilated the spirit of the demonstration program.

Considerations like these also underly the significance of the formal rating scale as an index of improvement in public health performance. That Fargo (as reported in Part Two), has raised its score on the standard scale—the American Public Health Association Appraisal Form for City Health Work—from 320 points to 827 out of a possible 1,000, is a matter for gratification, but the limitations of a rating which is necessarily based on quantity rather than quality of service are obvious.

There remains for discussion in this chapter the question of the first objective: how far has the health work done in Fargo under public and demonstration auspices in the last five years affected the health of Fargo children?

Here the chief difficulty appears at the very beginning.[1] How is health to be measured? In a program devoted merely to the eradication of a particular disease, morbidity and mortality rates tell the story of success or failure, subject only to the fallibility of reporting. In a program limited to the effort to bring underweight children up to "normal," results can be tabulated with some accuracy, however difficult it may be to interpret their medical significance. But in a program built around the concept of unified effort by many groups of workers to better the physical tone of five or six thousand children, both satisfactory measuring rods and the means to apply them are lacking. Mortality rates in many instances measure the grosser failures of preventive health service; even morbidity rates are likewise negative; the meaning of anthropometric measurements, including weight, is far from clear without further research; the practice of health is an intimate concern of the individual and of the family, whose everyday life is beyond the reach of sound statistical inquiry; and the attitudes which ultimately control the reaction of the child to its physical environment are almost too subtle for definition, to say nothing of measurement.

There is no doubt in the minds of those who have watched Fargo for the past five years that the general appearance of children is healthier—for example, that "runny" noses are less frequently seen; that a better level of health has been reflected in greater alertness and accomplishment in school; that children have a new awareness of health as a value in

[1] For an excellent discussion of the problem of measurement see Edgar Sydenstricker, The Statistical Evaluation of the Results of Social Experiments in Public Health (*Proceedings of the American Statistical Association*, March, 1928).

life and a new knowledge of fundamental means of building and preserving it. When a school principal writes that "the people of Fargo are thinking more of food and health habits than they are of the medicine bottle" she implies a better state of health both objective and subjective. When a produce dealer and a dairyman[2] comment on the increased consumption of vegetables and milk the inference is plain. Such impressions are not evidence, but they are suggestive straws in the wind.

When it comes to the measurement of health improvement it is possible only to collect such evidence as falls under certain familiar heads—mortality, morbidity, gain in weight, freedom from recognized and preventable defects, and the like—and to put these more or less relevant facts side by side. Their significance, either separately or together, is not entirely clear, and in sum they fall far short of telling the complete story. But as a group of facts they do seem to imply an objective change in health status which it is fair to attribute in part to the deliberate efforts which have been made to produce just such a change.

Mortality Rates

To the casual reader mortality rates for the age groups principally served might be the most acceptable evidence of accomplishment in a health program. But health workers know that they are conclusive only when the population on which they are based is large enough, and the time during which they are collected is long enough, to make sure that merely casual or hidden factors do not distort or conceal the trend. Rates for five years in a population ranging around 25,000[3] are not a satisfactory basis for deter-

[2] See Part One of this report, pp. 44; also Part Three, p. 113.

[3] Particularly when the city is a hospital center to which many non-residents come for medical service.

mining the trend, and while their showing in Fargo is in the main very favorable, it would be quite unsafe to regard them as absolute proof of improvement or to expect the apparent tendency to continue without disturbing fluctuations. They are given, therefore, only for what they are worth.

It would be interesting to compare Fargo's experience during the five demonstration years with a like period before the demonstration. However, vital statistics and particularly birth reports prior to 1920 are not sufficiently complete for this purpose, and a three-year period has been used instead, together with the latest available rates for the United States Registration Area. The accompanying charts and figures show the results of these comparisons. Further detail will be found in a special study of Fargo vital statistics which is now in preparation.

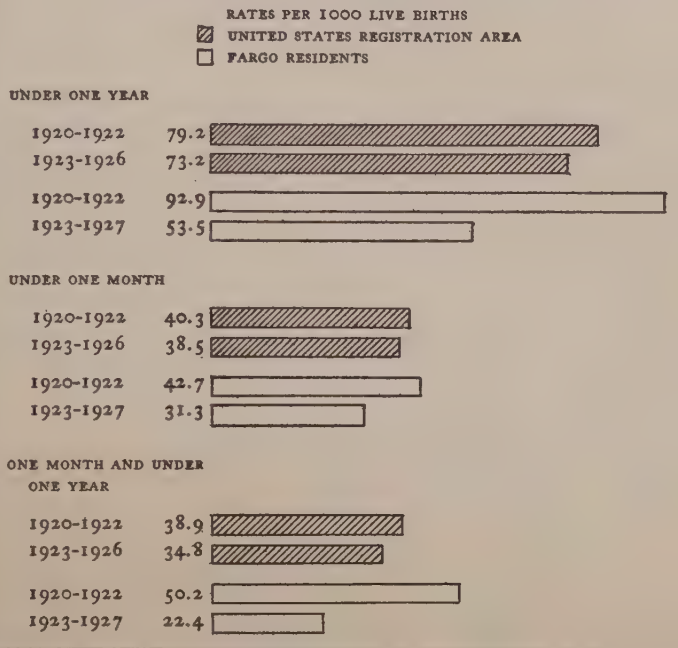
The outstanding fact presented by this tabulation is that there has been a marked reduction in the death rate for Fargo children in every one of the five age groups served and studied—infants under one month, infants one month and less than one year, children one year and less than five, five years and less than ten, ten years and less than fifteen. In every case, moreover, the decrease has been greater than the corresponding reduction during a comparable period in the rates for the Registration Area.

The infant mortality rate in Fargo for the demonstration period was 53.5—a reduction of 42 per cent from the rate for the period just preceding the demonstration, 92.9. The rate for the United States Registration Area for the years 1923–1926 was 73.2 in comparison with 79.2 in 1920–1922, a reduction of but 8 per cent.

Most of the saving in infant lives in Fargo, as is evident from *Chart 13*, has taken place among children over one month of age. For this group the mortality rate during

Chart 13

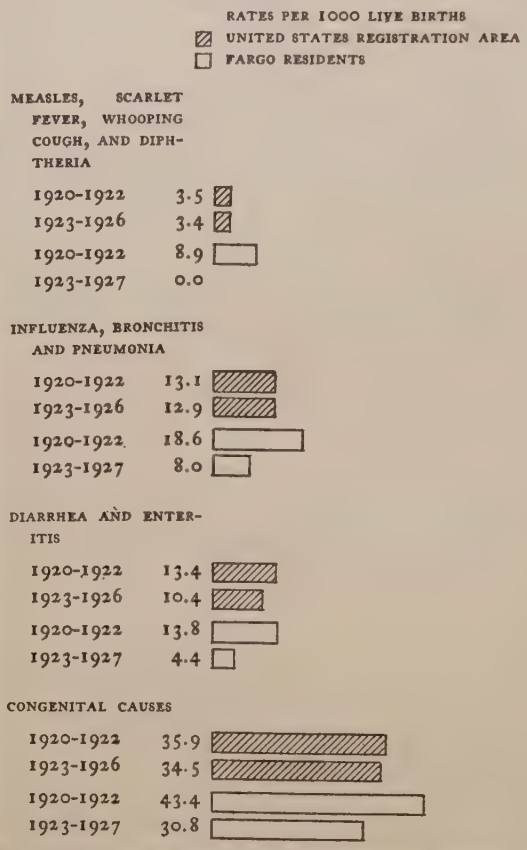
INFANT MORTALITY RATES BY AGE IN FARGO PRECEDING AND DURING THE DEMONSTRATION IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA



the demonstration was 22.4, less than one half the pre-demonstration rate of 50.2. Before the demonstration, the Fargo rate was high in comparison with that for the Registration Area; it is now relatively low. The reduction is most conspicuous, as would be expected, in the causes especially influenced by present methods of prevention and control (*Chart 14*). Within the demonstration years, for instance, there was no infant death among Fargo residents from measles, scarlet fever, whooping cough or diphtheria, although the mortality rate from these diseases in 1920–1922 was more than twice that of the Registration Area.

Chart 14

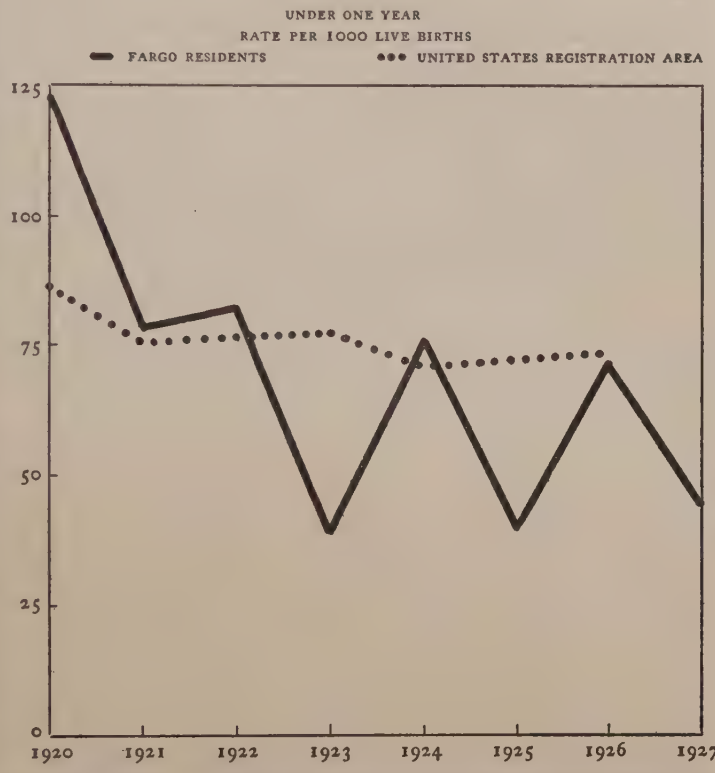
INFANT MORTALITY RATES FOR CERTAIN CAUSES IN FARGO PRECEDING AND DURING THE DEMONSTRATION IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA



The reduction in the total infant death rate and the reductions under and over one month are also apparent from the annual rates (*Charts 15, 16, 17*), although in so small a population unit there is a tendency toward wide fluctua-

Chart 15

YEARLY VARIATIONS IN INFANT MORTALITY RATES IN FARGO 1920-27 IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA



tion in rates calculated on an annual basis. These fluctuations were found even when the relatively large numbers of births and infant deaths among non-residents were included.

Among older children there has also been a considerable reduction in mortality rates in comparison with the pre-demonstration period, as shown in *Chart 18*, and the rates

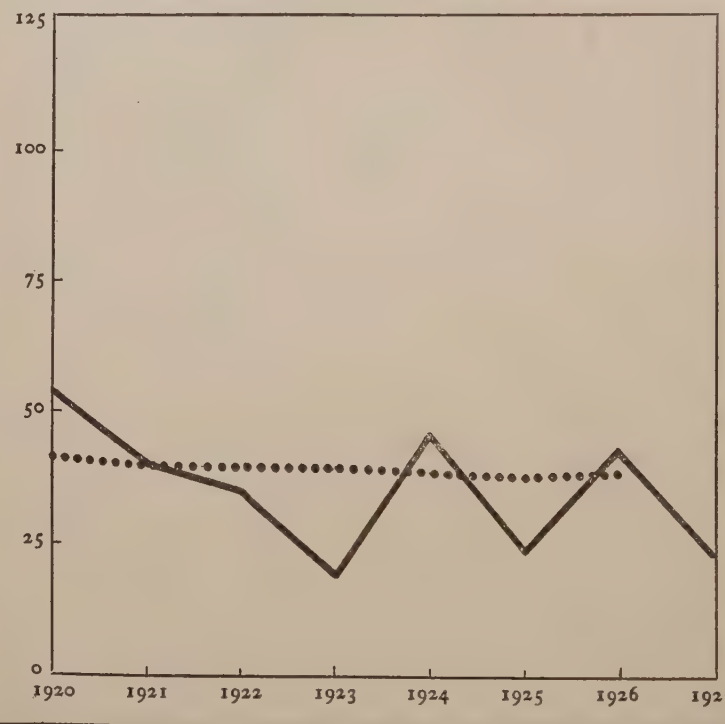
during the demonstration period are considerably below the rates for the Registration Area.

In this connection it is interesting also to recall the figures given in Part Two of this report[4] as to the reduction in the number of deaths of persons under 20 from the common preventable causes: typhoid fever, diphtheria, scarlet fever,

[4] See p. 66.

Chart 16

YEARLY VARIATIONS IN INFANT MORTALITY RATES IN FARGO IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA



measles, whooping cough, tuberculosis, diarrhea and enteritis, bronchitis and pneumonia. In 1920–1922 such deaths averaged 33 per year; during the demonstration period they averaged but 15 per year.

Maternity Care

Measuring the results of the demonstration program of maternity care is especially difficult. While direct service

Chart 17

YEARLY VARIATIONS IN INFANT MORTALITY RATES IN FARGO IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA

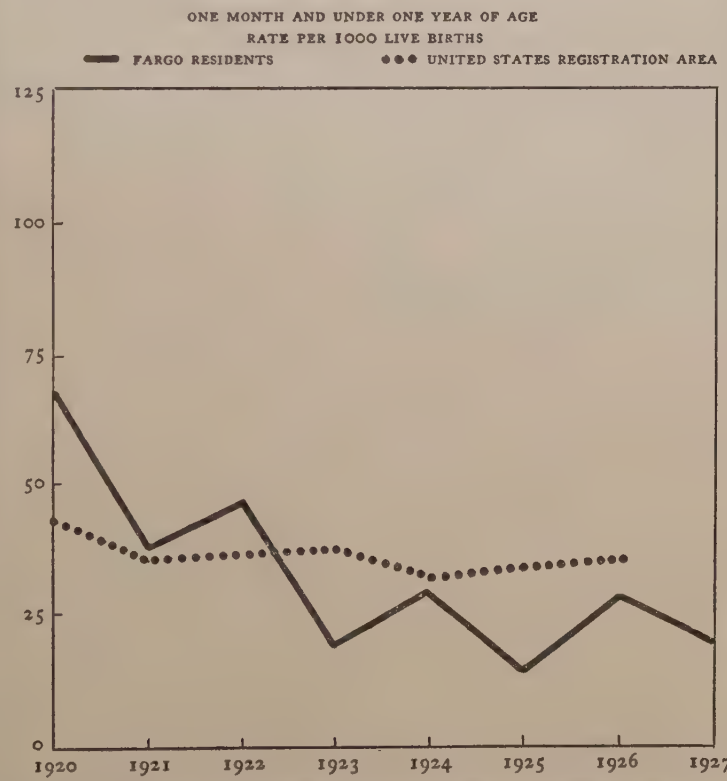
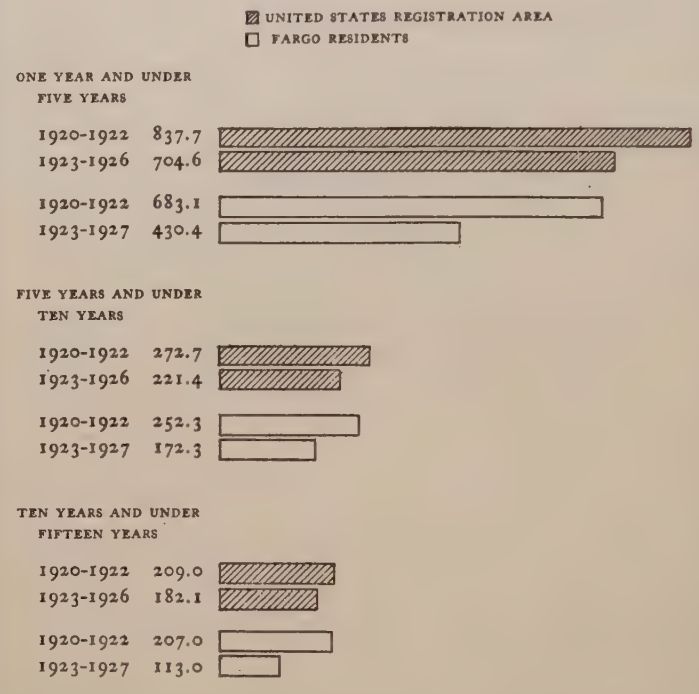


Chart 18

MORTALITY RATES (PER 100,000 POPULATION) AMONG FARGO CHILDREN PRECEDING AND DURING THE DEMONSTRATION IN COMPARISON WITH THE UNITED STATES REGISTRATION AREA



to maternity cases was limited to home visits by the public health nurses, all members of the demonstration staff helped to arouse community interest in better health care during maternity. In many cases public health nursing contact with a case was brief. In relatively few cases was this service sufficiently integrated into continued prenatal and postnatal care so that nursing records give an adequate picture of its effect.

Where the total population is as small as in Fargo, moreover, little dependence can be placed upon differences in maternal mortality rates as an index of change in community standards of maternity care. In the three years preceding the demonstration there was an average of slightly under two maternal deaths a year (1920, two; 1921, one; 1922, two). During the five demonstration years there were twelve resident maternal deaths (1923, two; 1924, three; 1925, none; 1926, three; 1927, four), or an average of slightly over two deaths per year.

Maternal mortality rates in Fargo—3.5 before and 4.8 during the demonstration period—are low in comparison with the rates in the Registration Area—7.1 for 1920–1922 and 6.6 for 1923–1926.

The stillbirth rates in Fargo were 3.7 for the years 1920–1922 and 3.5 for the years 1923–1927, in comparison with 4.0 and 3.9 in the Registration Area.

Probably the best test of the adequacy of the program for public health maternity care as developed in Fargo is the degree to which the points especially emphasized have become an integral part of community health work by private physicians. The survey of prenatal care in 1926, already summarized (page 141), points at least to a very considerable agreement at that time between the private physicians, the demonstration and the public as to the need of preventive care for expectant mothers. The increase in the percentage of hospital deliveries during the demonstration (page 144), may also be in part a reflection of the nurse's influence.

It would seem to be true that the decrease in the volume of maternity nursing care during the latter years of the demonstration was related to an increased feeling of responsibility by physicians for the maintenance of good maternity care (including nursing), as a part of private

practice, and an increased desire on the part of patients for such service.

Morbidity Rates

In common with nearly all other American cities, Fargo lacks machinery for determining the incidence of other diseases than those which have been made reportable for the purposes of communicable disease control, and since even the reportable diseases were not adequately recorded prior to the establishment of a full-time health department it is impossible to compare one period with the other. The number of reported cases of certain diseases during the past four years is tabulated in Part Two of this report.[5] Improvement in diagnosis and in reporting during the demonstration period tends to increase the difficulty of interpreting even this meager data.

The second-day absence visits of the nurses might, theoretically, have been a source of valuable morbidity data. Some information secured from the records of these visits has already been briefly reviewed (page 120). The records were not planned or checked, however, as source material of this sort, and the nurse's record was often made before a physician's diagnosis was available. It is to be regretted that such information was not secured, particularly as an index to the effectiveness of the health officer's ruling that common colds were to be excluded from school. Such a task would, however, have added to the burden of a school nursing program which was already claiming a very considerable portion of the nurses' time.[6] The volume of nursing visits primarily for care of the sick was too limited to yield valuable morbidity data.

[5] Part Two of this report, p. 68.

[6] Children absent for five consecutive days were dropped from the rolls, and readmitted only as "new pupils." No figures for total absence, therefore, are available as an index of possible changes in the morbidity situation among school children.

Health Status of Children Examined

The medical examination of infants and children and the observation of weight, height and gain—which were done at irregular intervals for infants and preschool children attending the health centers, and routinely for school children—yield certain evidences of changes in health status and physical development. Improvement in weight and gain may be measured objectively and the findings are not seriously affected by the personal equation of the examiners. Improvement in nutrition in the sense in which this term was used in the medical examination (see pages 112 and 127), is more difficult to gauge because the observation in this case is subject to changes in the examiner's own standards. Observation of the correction of defects, or of their lessened incidence in comparable groups of children, is presumptive evidence of health improvement, inasmuch as certain defects are known to be inimical to health; this is also somewhat subject to changes in the observer's standards. Evidence as to health habits, freedom from illness, etc., obtained from the history given by the parent or child, is of value but is difficult to check.

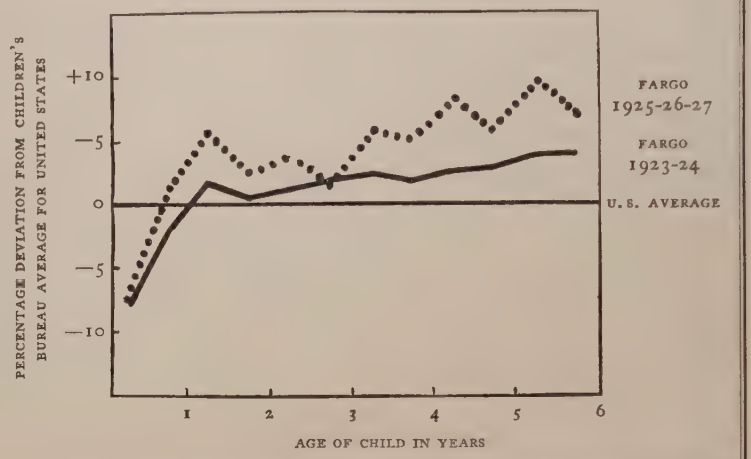
Weight

Infants and preschool children weighed in the health centers during the latter part of the demonstration were heavier than those weighed in the earlier years (*Chart 19*). Throughout the five years the weights of preschool children were in excess of the average for the United States as shown in studies of the Children's Bureau.

It is, however, difficult to determine how far these weights are typical for Fargo as a whole, and how far they may have been affected by the selection of children through their parents' voluntary use of the health center, and by

Chart 19

WEIGHT IMPROVEMENT IN FARGO INFANTS AND PRESCHOOL CHILDREN DURING THE DEMONSTRATION PERIOD



variations in the economic status of children examined during the five-year period.

Analysis of the tabulated weights and heights of all elementary school children is in process. So far as this study has already gone, there is little indication that there was a significant change from 1923 to 1927 in the degrees of deviation of the weights and heights of Fargo children from the standards in the Baldwin-Wood tables, nor are there significant changes from year to year in the average weights and heights of different children of the same age. Perhaps this experience is to be expected in so short a period, in view of the fact that school children first came under the influence of the health program at a relatively advanced age. Further investigations of weight, gain and weight-height ratios will be published later.

BEFORE THE PHYSICIAN EXAMINES SCHOOL CHILDREN THE NURSE TESTS THEIR VISION

Defects and Their Correction

The incidence of defects among Fargo children at different ages has been studied in detail from the records of medical examinations (see pages 97 and 129). Critical study of this data shows its limited value as a measure of changing incidence of defects during successive years. The number of children in each age group examined each year was relatively small and the possibility of chance fluctuation correspondingly large. In each demonstration year many newcomers in Fargo appeared among the children examined, and these children obviously had had no opportunity to be influenced by the local health program. Records and standards were planned primarily as service data for the use of physician, teacher, and nurse and not as research material. Adaptation of the examination technique to local health needs and local medical practice naturally resulted in some shift in rating standards even though the examiner remained the same; when the examiner also was changed during the last months of the demonstration period a further element of uncertainty entered the situation. In general any detailed study of difference in the incidence of defects from year to year seems to be of doubtful value as an index of accomplishment.

PERCENTAGE DISTRIBUTION OF NUTRITION RATINGS OF SCHOOL CHILDREN

	Satisfactory	*Unsatisfactory*	*Very Unsatisfactory*
1923–1924	41.8	50.6	7.6
1924–1925	45.5	47.8	6.7
1925–1926	52.6	43.7	3.8
1926–1927	54.6	42.6	2.8

A possible exception is found in the ratings of nutrition in school children during the four school years when such

ratings were given by the same examiner, though the subjective limitations of these ratings have already been pointed out (page 163).

The increase in children rated as having good nutrition is in accordance with the general impression of those in Fargo who were in close touch with child health problems throughout the five years.

The volume of reported corrections of defects has also been studied in detail as an index of accomplishment, but in Fargo as elsewhere this has proved a very difficult measurement problem. During the earlier years of the demonstration emphasis was placed on the record of the physician's reexamination of a child as the primary source of data as to corrections made in the interval between two examinations. Some idea of the difficulties involved in interpreting even this apparently simple record may be had from the results of a special study of surgical removal of tonsils in 1,738 Fargo school children whose records showed two medical examinations. It was found that 22 per cent of these children had had their tonsils out before the time of their first examination. Of the remaining 1,351 children 1,184 were rated as normal, or as requiring simply further observation of slightly abnormal conditions; 167, or about 10 per cent of the entire group, were noted as needing medical attention. At the time of the second examination 82 of the 1,184 children in whom tonsillectomy was not considered necessary by the examining physician had had their tonsils removed. Of the 167 children who had been referred for medical attention, 27, or 16 per cent, had had a tonsillectomy before the second examination; while 67, or 40 per cent, showed spontaneous improvement sufficient to remove them from the category of children in urgent need of tonsillectomy; and 73, or 44 per cent, were still marked as defective. The only generalization which can safely

be made is that the improvement of throat conditions in this group was due to actual surgical interference and other factors not capable of exact determination; no blanket count of corrections secured would be a fair measure of the change.

Analyses of this type have undoubted value in special connections but were found in Fargo to be of limited use as a measure of what was taking place in corrective service. From another point of view, it was unsatisfactory to record corrections merely for those children who were examined and reexamined at health centers and schools. Only about half the infants and preschool children who were served by the nurses also came to the health center; many of those who did come did not return; the school population was a rapidly changing one; and school examinations rarely reached the same child more often than once in two years. It was necessary therefore to take account also of the follow-up work of the nurses with children whose contact with the staff physician was limited, or who were seen only by their family physicians.

Beginning in 1926, therefore, a current count of corrections from nursing records was added to the count made on medical reexamination. Record was kept of the status of all defects referred to the nurses for follow-up—including not only those referred from health center and school examinations, but also those referred by private physicians and teachers. These conditions were listed under headings corresponding to those used by the medical examiner, and at the end of each month a count was made of the defects discharged as corrected during the month, those discharged without correction, and those still under care at the end of the month. Correction was considered made when medical and dental treatments had been completed and there was no longer need for further nursing follow-up,

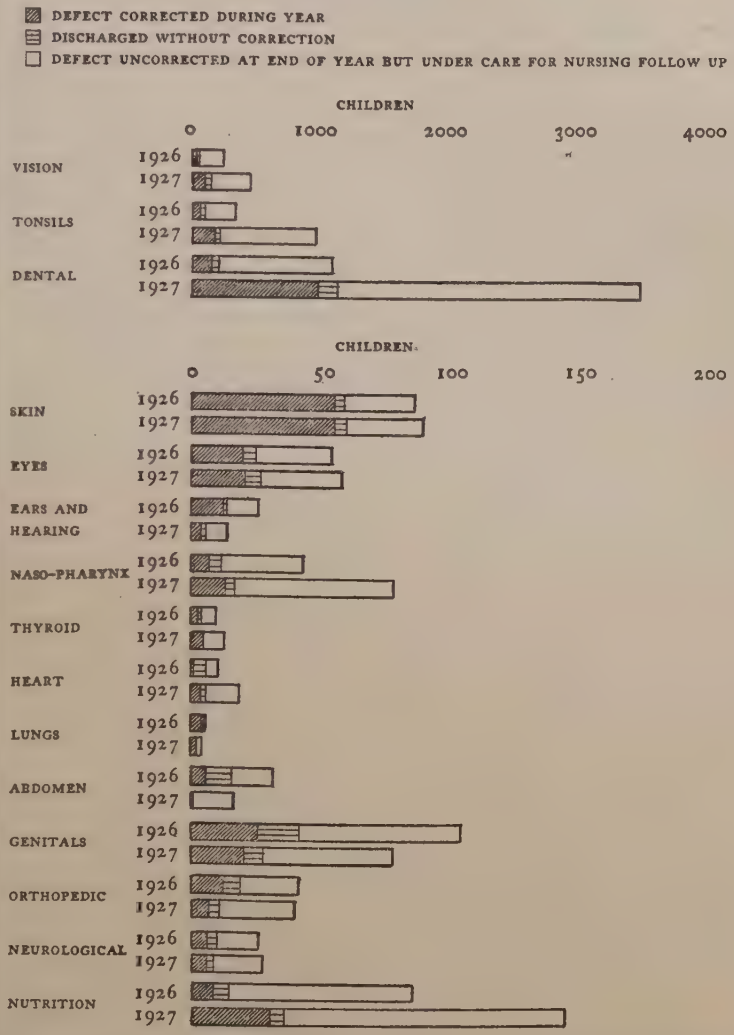
or (in the case of certain conditions requiring long continued treatment, such as heart, lungs and orthopedic defects), when continued medical supervision had been satisfactorily established. If the recommendation from the child's later examination by family physician or dentist was that no corrective treatment was necessary the defect was listed as being discharged without reported correction, so that such changes in diagnosis do not affect the count. If the child moved away from the demonstration area before his defects were corrected, these were also listed as being discharged from nursing supervision without correction.

The volume of this type of follow-up service by the Fargo nurses, and the results of the combined effort of all the health workers to secure corrections, are apparent from *Chart 20.* It must be noted that the length of the bar in each case has no direct relation to the reported incidence of the group of defects in question; it indicates rather the number of such defects which the nurses were engaged in following up, and the cases not discharged after correction or otherwise are carried over from one year to the next. The marked increase in the number of corrections of dental defects from 1926 to 1927 is probably a reflection of the public health dental service established in the latter year.

The wide variation in methods of counting corrected defects makes it difficult to draw any comparisons between the experience of Fargo and that of other communities. There is evidence of progress in Fargo, and of encouraging success in dealing with some types of defect. At the end of the demonstration period, in order to bring the system more nearly into conformity with the standards then presented by the American Public Health Association Appraisal Form for City Health Work, emphasis was again shifted to a yearly check-up of the current nursing

Chart 20

REPORTED CORRECTIONS OF DEFECTS AMONG INFANTS PRESCHOOL AND SCHOOL CHILDREN 1926 AND 1927



and teachers' records of correction of certain types of defect—particularly those of the eyes, nose and throat, and teeth—which are more easily measurable. Methods of measurement in this field are, however, still in flux. And it must always be remembered that the educational effect of the medical examination and the nursing follow-up as a contact between physician, nurse, parent and child in which sound health practices are taught may be not less important—though even harder to measure—than the correction of specific defects.

Chapter IX

THE DEMONSTRATION AS AN EXPERIENCE IN COMMUNITY SELF-EDUCATION

IN the foregoing chapters the attempt has been made to outline what might be called the "working drawings" for the Fargo demonstration. They describe plans and procedures found essential to meet daily needs and to fit in with the activities of the city commission, school board, medical society and various other civic groups. It was necessary, as with every thoughtfully planned community project, to have a central theme and structural coherence, if a clearcut purpose was to be served.

Community education, built upon unity of plan, was the central theme of the Fargo demonstration. Those who guided its health activities attempted to join the contribution of each group to those of all related groups, so that the health program, taking form from them, should stand forth as one indivisible structure. While no claim is made for the work in Fargo as a model in this respect, it is believed that there was definite achievement. It offers some concrete data in a field in which the tendency has been too much toward academic theory. Much of the data accumulated in the past five years can be found in the preceding chapters, but it seems worth while here briefly to touch upon some of the more important evidences of the controlling influence of this underlying educational purpose as expressed through interlocking activities and services.

It is perhaps to be expected that the educational purpose of the demonstration and unity in plan and practice would be found most clearly evident in the school health services,

as described in Chapter II. Here in the schools we see the core of a process of education which reaches out into the community. Since there is an entire generation in the schools at any one time they offer a rare opportunity to make healthful living a major objective of universal education and an integral part of the whole educational system. In addition, the very fact that the school building serves as a physical point around which the activities of those serving the child can be centered throws into sharp relief the need for exchange of information, discussion of purposes, and mutually helpful participation in a common program of service. This sort of exchange must inevitably broaden the vision of each and give a wider base for a scheme of education in which not only the child but everyone who participates in service to him is "going to school" to his great advantage.

The Teachers

Take, for example, the case of the teacher, who has been described as the pivot around which the school health program has revolved. We are apt to think of her as equipped to teach all the subjects for which she is responsible. As a matter of fact, too frequently her knowledge of the practice of health is remote and academic. As an aid in enlarging her point of view and in strengthening her teaching the medical examinations in Fargo were made carefully for the express purpose of studying the relation between conditions found and the child's habits of living as well as specific defects requiring treatment. The results were laid before the teacher with this educational purpose in mind. Wherever possible, she was brought in to observe the examinations. The nurse supplemented this basic information by bringing to the teacher her observation of the actual working out of classroom instruction and guidance in the

PUBLIC HEALTH ENTERS THIRD AND FOURTH GRADE CONSCIOUSNESS: AN EXPEDITION TO THE CITY WATER WORKS

AFTER A VISIT TO THE CITY WATER WORKS THIRD-GRADE CHILDREN MADE THIS MODEL OF THE APPARATUS THEY HAD SEEN

child's habits, as observed at home, and the effect of efforts to change the home environment.

Building upon this base of knowledge, the teachers themselves, at the suggestion of the director of school health education, instituted intimate case studies of questions relating to the health and welfare of each of their pupils. While these studies were not comparable with a physician's notes, they revealed very gratifying ability on the part of laymen in health matters to grasp the relationship of cause and effect between conditions and habits of the child in home, school or playground and the child's development or lack of development along various physical and mental lines. They enabled the teachers to bring to bear upon the problems of the physician, the nurse and the parent a pedagogical knowledge and experience which greatly enriched the contributions of the others and increased their effectiveness in influencing parent and child.

These points have been mentioned by way of illustrating unity of action with a central purpose rather than with any thought of describing the school health program. Further illustrations undoubtedly will be found in a more complete discussion of the health education phases of the demonstration to be published later.

The Nurses

In general, it may be said that in health education the nurse concentrated upon individual instruction, especially in the home, for both parent and child (or for other adults, as the case might be) and the teacher devoted herself to classroom instruction, individualized so far as possible. It was recognized that such a division of responsibility, if really clean-cut, presupposed well-equipped and organized staffs of teachers and nurses such as might not exist in many communities.

The nurse, in carrying out her educational responsibilities, was, more than any other individual, the connecting link between the several health services. Except for matters of diagnosis and actual enforcement of quarantine, she was frequently the agent of the health officer in the home and in the school, explaining the necessary measures of isolation, creating a demand for immunization to prevent spread of disease, and, in general, building up community support for the essential control functions of the health department. She aided the teacher in her statutory duty of excluding children with suspicious symptoms from school.

At the time of health examinations, the nurse, wherever possible, was present to serve as the conveyor of information concerning home conditions to the pediatrician, and the interpreter to aid parent and child in making practical application of the medical recommendations made in school, health center or the offices of private practitioners.

In itself, this sort of shuttle service, when it is undertaken as in this case by a well-equipped and responsible agent, is an educational process of exceptional value to the agent as well as to those served, tying all more closely together.

Besides her conferences with individual teachers on problems relating to individual children, the nurse more or less regularly attended teachers' meetings in her district, a practice of great mutual benefit. For a time during the year 1925, when the problem of integration was perhaps more prominently to the fore than at any other stage of the demonstration, there were regular staff discussions of problem cases. The essential facts on such cases were prepared by the nurses and submitted particularly for the purpose of bringing about a closer understanding of the point of view of all workers serving in the health field and better ways of making their services effective. This sort of discussion and exchange was carried out to a greater or less extent

throughout the demonstration period. The instances which have been cited are examples of educational factors in the nursing service which were made possible through close correlation with other services. They do not have to do with the educational values found in routine public health nursing as a separate entity or inherent in the supervision of nursing work, some of which are described in the nursing sections of this report and some of which are assumed as common practice in all nursing staffs.

The Physicians

It is safe to say that in Fargo, as in any community where careful preventive medical examination of children and infants is carried out, and where there is also a live nursing service, the practicing physicians of the community have had available to them information on conditions observed in home and school which has been invaluable in supplementing their own observations. In addition, there has been throughout the demonstration period frequent exchange of information and discussion between the health officer, the demonstration pediatrician and the physicians with reference to children under the physicians' care.

With medical delegates serving on committees, and at meetings of the medical society, broad questions of policy touching upon the relationships between public health practice and private medical practice have been discussed freely with mutual benefit. A medical institute was held, consisting of lectures, clinical demonstrations and discussion, to the end that there might be better understanding of questions relating to obstetrics, pediatrics and other phases of medicine. The results of this institute were very gratifying and in a sense represented the climax of the joint efforts of the practicing physicians, the health officer, and the pediatrician to raise the level of medical practice.

This sort of mutual interchange of information and discussion between the physicians and those engaged in public health work undoubtedly gave cumulative power to the approach of each to child or parents. It furnished each participant with a broader understanding of the health program and insured mutual support that was both moral and practical. When the nurse visited the home, for example, both child and parent felt as a rule that she was speaking with authority, representing the opinion of the teacher, the family physician and the demonstration pediatrician.

That the cumulative influence of others also had a bearing upon medical practice is brought out in the excellent statement on The Local Medical Society and Public Health, by a committee of the Cass County Medical Society (North Dakota), in the *Journal of the American Medical Association* for January 21, 1928. It is indicated in this statement that among the physicians doing a considerable amount of internal medicine there was a general observance of increased interest on the part of their patients in preventive medicine, as the result of community education in health.

It is perhaps not too much to say that the Fargo experience has in some respects pointed the way to a close and friendly team play between those engaged in public health and private practitioners of medicine which may be of real service to other communities which are working out medical and public health relationships.

The Parents

The convergence of the educational influence of several groups upon the youth of Fargo has been spoken of. In such a program the parents should be a more or less pivotal factor and so far as possible the effort was made to see that they were. In addition to being visited by the nurses

in the homes, as described, parents were as a routine invited not only to health center examinations, where mothers more frequently brought their babies, but also to the school examinations, where parental attendance was from 50 to 65 per cent. It is hard to overestimate the value of the direct discussion with the parent of the child's needs in the light of the physician's findings at the time of the physical examination and while the nurse, in many cases, was present. For three years the parents participated in watching the health habits of school children by checking their lists regularly in the home and returning them to the teacher. This gave the parents a practical working knowledge of just what the child needed to do from the health standpoint which would have been difficult to obtain otherwise so thoroughly in so short a time. Added to this was the multiplied effect of the mass enthusiasm of practically all children in both public and parochial schools for better health habits and better living conditions. This enthusiasm was carried directly back to the home and undoubtedly had a powerful influence, not only in focusing attention on the problems of the children of a particular family, but in bringing about generally a more sympathetic support of public health measures. This probably explains why the health education work in the schools has been the one thing almost universally mentioned by the citizens of Fargo whenever the health program has been discussed.

Organized Community Contacts

Before the demonstration began, Fargo had a live and interested Parent-Teacher Association with branches in the various schools. To each of these a series of lectures was given describing the work of the health officer, of the nurse, of the school teachers and the director of health education, and of the medical service. These groups aided the Tuber-

culosis Association in the early promotion of milk serving in the schools, resulting in greatly increased consumption by the children, and leading to the assumption by the Board of Education of responsibility for supervising milk drinking in the schools. The director of nursing service and the director of health education both sat in with members of the Council of the Parent-Teacher Associations, insuring the closest sort of cooperation between this citizen group and the members of the demonstration and health department staffs. The relationship of the association with the school administration was unusually satisfactory.

In the various luncheon clubs, the chamber of commerce, etc., there were fairly frequent discussions of the health work being carried on in the schools and the health centers, health department, etc., and some responsibility was assumed by these organizations for special phases of the work. For example, the Fargo Commercial Club offered a loving cup for two successive years for the school attaining the highest record in the observance of health habits, correction of defects, etc. The Rotary Club assumed responsibility for organized playground supervision during the first year of the demonstration. The Red Cross and the Tuberculosis Association were invaluable allies of all health work carried on, contributing funds for personnel and aiding in every way possible. A nursing committee organized early in 1923 assisted the nursing service throughout the demonstration.

This community participation in the health program and responsibility for it headed up in a citizens' committee, representative of the governmental agencies involved and the civic organizations interested. This committee or its executive committee met at more or less regular intervals; reports were received on the work being done, expenditures were considered with some care, and, in general, a live sense

of responsibility was shown for the support of the demonstration work—up to the time when the City Commission and the Board of Education began to take over more and more of the personnel and activities. There has been discussion of the organization of a public health association which should continue the responsibility of this committee and be the center for public health education and public support of the health program.

A description of community education in Fargo is not complete without a tribute to the remarkably fine service in public health education by the *Fargo Forum*. Throughout the five years of the demonstration it opened its columns to a liberal presentation of the purposes of health department, school board and demonstration in the health field. It went beyond this and made an effort to see to it that members of its staff were informed at first-hand about the health program to an extent that is seldom found in any community. It is impossible to estimate the powerful influence thus exerted in keeping the people of Fargo intelligently informed about the progress of the demonstration and prepared to support it whenever and wherever needed.

In spite of the fact that there was not a great deal to show in the way of formal community organization, other than these activities, it can hardly be doubted that the citizens of Fargo throughout the five-year demonstration period felt and showed in practical ways a sense of civic responsibility for the work being carried on which was far greater than citizens ordinarily exhibit for the health work of their communities. The demonstration was therefore in a real sense an experience in community self-education.

APPENDICES

Appendix A

ORGANIZATION AND ADMINISTRATION

THE general direction of the demonstration—and particularly the coordination of its several technical services and the interpretation of its purpose and program to the community—was in the hands of a director responsible to the Child Health Demonstration Committee, an operating agency set up by the Commonwealth Fund. Through the director close contact was maintained between the demonstration and the health officer, so that the community health program was, in effect, a unit. The medical service, in charge of a pediatrician; the nursing service, with a director of nursing and six staff nurses; the school health education service, in charge of a director; and in the latter part of the demonstration the public health dental service, were maintained as separate divisions of the demonstration, linked together by their common responsibility to the demonstration director and by personal consultation between division heads which was so frequent and informal that the whole group functioned for the most part as a unit. A statistician responsible to the director was in charge of current recording of activities and measurement data, aided in handling vital statistics, and conducted special statistical inquiries as needed for demonstration purposes.

MEDICAL SERVICE

The central factor in the work of the staff pediatrician was the health examination, which, as has already been shown, formed the basis for specific individual health

instruction of the child—given by the teacher in the classroom, by the nurse in the home, and by the physician in the health center and school.

His other activities were closely tied into the general community health program. He met private physicians at their invitation in consultation over sick children. He conferred with family physicians about children referred from the health center for medical care or referred to the health center for special examination. He addressed clubs and civic groups on the demonstration program and on health essentials. He gave advisory medical service to certain institutions caring for children and cooperated in various ways with the other demonstration services.

The medical service was planned to fit into the needs of the community, avoiding conflict with any existing work, either private or official. Although for administrative purposes this medical program was set up as a part of the demonstration, it was so organized that with the close of the demonstration period it could readily be continued as a function of the city health department and school system.

Agreement with Medical Society

The local medical organization, the Cass County Medical Society, which included all the eligible physicians of Fargo in its membership, was a party to the original invitation which brought the demonstration to the city. To it the demonstration staff at the beginning of its work turned for advice and assistance. The success of the entire project depended upon the support of the medical profession, individually and collectively.

Before any service was offered to individuals a working agreement was drawn up and presented to the medical society as a basis for cooperation between the demonstration

staff and the local physicians. Its preamble expressed the attitude of the demonstration:

The following is submitted to the Cass County Medical Society for its consideration and approval, to the end that there shall be a complete and harmonious understanding between the physicians of Fargo and the Fargo Child Health Demonstration and that these two organizations working in close cooperation may together and with the help of all other agencies do all that can be done for the health and well-being of the children and the people of Fargo. The demonstration comes, not as a competitor in the field of curative medicine, but as an agency advocating and teaching certain ideas in preventive medicine and with a willingness to demonstrate these ideas to you as physicians and to the public by furnishing or causing to be furnished to both certain forms of service.

The methods hereinafter proposed will, it is believed, thoroughly protect and conserve the interests of the private practitioner. In addition it is hoped that they will stimulate the growth of a new relationship between the physician and his patient whereby the former will expect to give and the latter to receive, and pay for, information and service which will aim to keep him and his children well.

The following abstract covers the essential points of the agreement (many of which have already been noted in the descriptive chapters):

1. The child health demonstration would assume responsibility for the conduct of the health center already begun by the Red Cross and Medical Society.

2. Ill children presenting themselves at the health center would be referred directly to their family physician.

3. No particular physician would be recommended for cases requiring medical attention. Anyone who represented himself to be without a family physician would be referred to a list of physicians practicing in Fargo and allowed to make his own selection.

4. In the absence of organized hospital out-patient departments, certain physicians would volunteer to care for indigents.

5. Since the work of the health center was educational and not charitable all who wished should be entitled to its services, irrespective of their financial standing.

6. Procedure for each case at health center was to include history, physical examination, weighing and measuring.

Cases with defects were to be referred to family physician for further examination and advice as to treatment.

Diet and hygiene might be discussed with parents. This was understood to include writing formulae for infants not already under the care of a physician and recommending cod liver oil (considered to be a food, not a medicine).

Copies of health center records were to be sent to physicians on request.

Cases might return to the health center as often as the physician in charge thought necessary.

7. These same general principles would govern the work of the nurses in the field and in the schools (nurses were not permitted to give specific diet instructions for infants).

8. A trained pediatrician would be employed by the demonstration to conduct health centers and school examinations. He would be available for consultation with physicians, but would not otherwise engage in private practice.

9. Health advice was to be given to prenatal cases.

The medical society also approved at the same time the standing orders governing nursing procedure in the absence of specific instructions by the attending physician.

This original contact with the Medical Society led later to the appointment of two advisory committees from its membership (one to assist the demonstration medical service and one the health officer), and opened the way for close professional relationships with individual physicians. With these committees plans were worked out for the health officer's immunization campaigns, and for the solution of certain problems raised by the attendance of patients of private physicians at the health centers. Other miscellaneous matters were discussed with the committees and some were taken before the Medical Society for further discussion.

Corrective Service

Fargo offered ample opportunity for the treatment of children's diseases and the correction of defects. The

general level of pediatric service in private practice was good. Hospital and private clinic facilities were adequate. Indigent cases were cared for by the city or county physician, or by private physicians who volunteered their services by arrangement directly with the family or through the public health nurses. The general hospitals furnished a limited amount of free bed space for tonsillectomies and other conditions requiring a short hospital stay.

Permanent Program

At the close of the demonstration the work of the director of medical service was taken over by the city health officer. By joint appropriation of the city commission and school board he was provided with a part-time medical assistant who aided in the school health examinations.

NURSING SERVICE

Public health nursing in Fargo was already developed to some degree when the city was selected as a demonstration center. The Infant Welfare Society of the Red Cross employed one nurse and the Board of Education two, one carrying a limited school nursing program while the other was concerned chiefly with attendance. Both Red Cross and Board of Education agreed to turn over their staff workers to the generalized staff formed by the demonstration early in 1923.[1]

The Staff

During the five-year period there were 18 different staff nurses; there was, however, no break in supervision. The director of nursing divided her time between supervision

[1] See Part One of this report, p. 19 ff., for details of staff development from these beginnings.

and a considerable degree of attention to community organization and related activities. Supervision was maintained through occasional visits to schools, health centers, and homes with the staff, through studies of the records, and through daily report sheets and conferences.

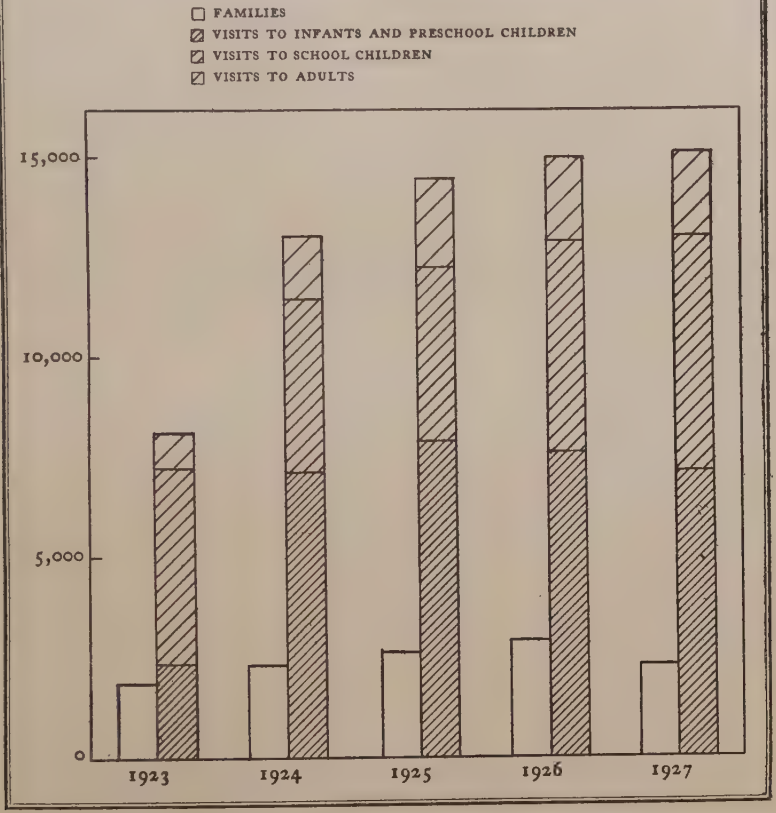
Every opportunity was utilized for staff education. Weekly staff meetings were held in which individual nurses participated freely through special reports and demonstrations. The directors of other divisions of the demonstration had frequent contacts with the staff as a group and individually, and the presence of a pediatrician on full time afforded unusual opportunity for consultation on the health problems of particular children. Special lectures were arranged through the courtesy of college instructors in Fargo and Moorhead.

Administrative practices did not vary widely from those prevailing elsewhere. Transportation was not a difficult problem, since the districts were not large. The average district covered two-thirds of a square mile and housed a population of from 4,000 to 5,000, including 400 to 500 infants and preschool children and 900 to 1,000 school children. One car was maintained for use of the director and staff as needed, and a transportation allowance based on street-car fares was made to all nurses. Some drove their own cars.

The usual daily routine was as follows: The two or three schools in each nurse's district were visited at the beginning of the day. The nurse then went into the field, returning to the office at noon after luncheon. During the noon interval she prepared the report of the previous day's work, wrote up records, prepared a new assignment sheet, and replenished the nursing bag. The afternoon was spent in home visiting, except that on two afternoons, in rotation, certain nurses attended the health centers. Night and Sunday calls were made only in emergency or where consecutive

Chart 21

NUMBER OF FAMILIES VISITED BY NURSE AND NUMBER OF VISITS TO EACH AGE GROUP



nursing care was necessary. Details of time distribution will be found in the table on page 193.

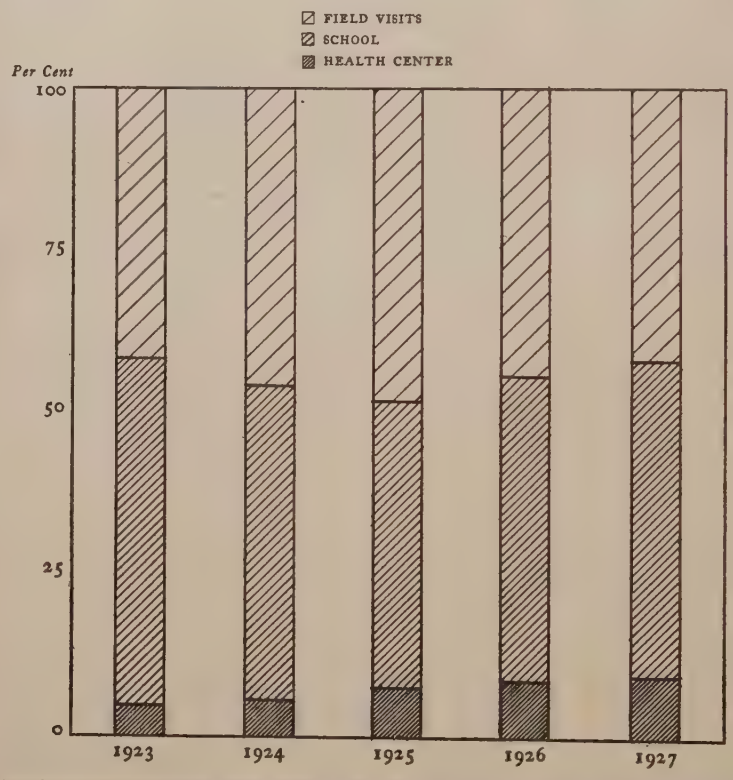
The Program

The demonstration aimed to give Fargo through the nursing service a better understanding of child, adult, and community health. Nursing service was therefore given,

in some degree, to all members of the family; the family was the unit to which educational efforts were addressed, and the family folder was the unit around which nursing records were grouped. From a third to a half of all the families in Fargo were served each year. *Chart 21* shows the number of families visited each year and the distribution of these visits by age groups served. The average number of visits per family was between six and seven a year.

Chart 22

DISTRIBUTION OF NURSING TIME BY PLACE OF SERVICE



In carrying out the program already described in detail, the nurse divided her time between the health center, the school building, and home visiting. The share of each of these in her total working time is shown in *Chart 22*; health center and school time being devoted to health supervision and communicable disease control, and visit time being divided between all types of service. The percentage distribution of nursing visits between the four principal types of service is shown in *Chart 23*. A tabulation of nursing visits and their percentage distribution will be found on page 194.

In this generalized program, each nurse devoted about two-thirds of her total time for field service (about 1,075 hours per year) to school children, about one-quarter to infants and preschool children, and about one-twentieth to maternity service, the remainder being spent in visits to adults for tuberculosis, other communicable disease and sick care. Had an equivalent amount of time been spent by specialized nurses, Fargo would have required the full time of about four nurses to carry its service for children of school age, almost the full time of two nurses for infants and preschool children, and from a quarter to a third of one nurse's time for maternity services.

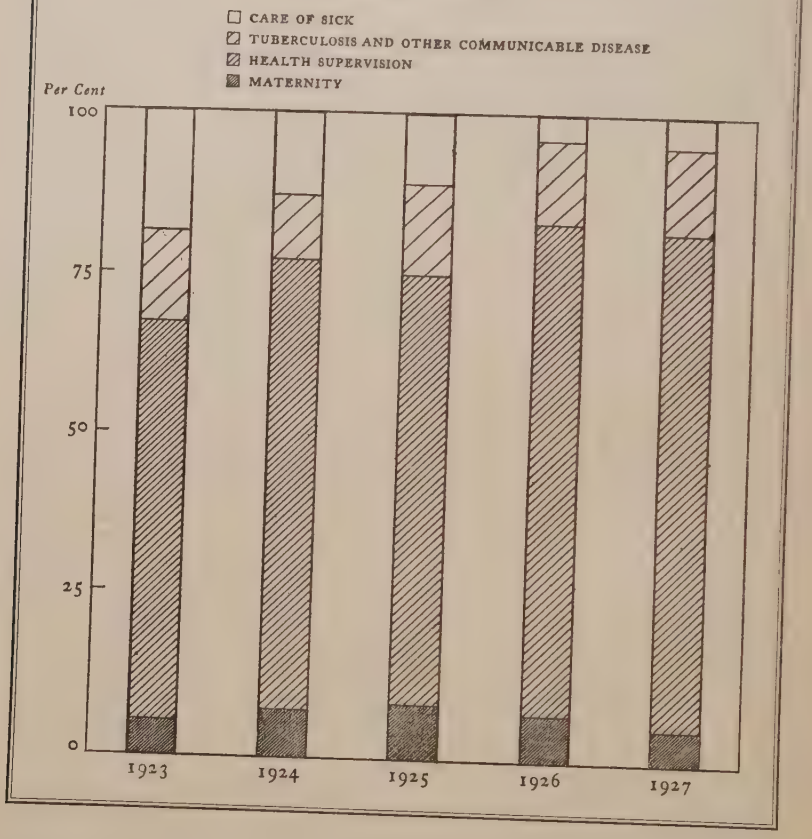
Permanent Program

During the latter part of 1927 the nursing director gradually transferred her duties to the staff nurse who was appointed nursing supervisor in the permanent program. The new supervisor had been a member of the demonstration staff for two and one half years, and had special post-graduate training for this responsibility.

In reorganizing the nursing staff for the permanent program, it was considered unnecessary to continue the office of director of nursing. The total nursing staff was

Chart 23

DISTRIBUTION OF NURSING VISITS BY TYPE OF SERVICE



therefore reduced from seven to six, and the supervisor took responsibility, in addition to her administrative duties, for a small nursing district. The other five districts were slightly enlarged to fit this plan.

Before the close of the five-year period the board of education and the health department had each assumed responsibility for three nurses. Since responsibility for

the community program was to be in the hands of the health department, the direction of all six was vested in the health officer. The generalized program therefore continues unchanged, with each of the staff nurses sharing in the school nursing program, as well as all other nursing activities.

DISTRIBUTION OF NURSING TIME BY TYPE OF ACTIVITY

	1923	*1924*	*1925*	*1926*	*1927*
Time of Nursing Supervisor (1)					
Hours employed: Total	*	*	2,165	2,110	2,161
Percentage distribution: Total	—	—	*100%*	*100%*	*100%*
Nursing supervision	—	—	34	34	25
Relief service for staff nurses	—	—	12	9	4
Community education and organization	—	—	25	35	44
Office work	—	—	13	8	12
Travel	—	—	5	4	5
Vacation and sick leave	—	—	11	10	10
Time of Staff Nurses (6)					
Hours employed: Total	8,948	12,024	12,560	12,201	12,637
Percentage distribution: Total	*100%*	*100%*	*100%*	*100%*	*100%*
Total for field service	*55*	*51*	*50*	*50*	*50*
Nursing visits	26	24	24	22	21
Health center service	2	3	4	4	5
School service	27	24	22	24	24
Total for related service	*45*	*49*	*50*	*50*	*50*
Community education and organization	3	6	8	7	8
Office work	19	19	19	20	22
Travel	13	12	12	11	8
Vacation and sick leave	10	12	11	12	12

* Time distribution not recorded.

FIELD NURSING VISITS BY TYPE OF SERVICE AND AGE GROUP

	1923	*1924*	*1925*	*1926*	*1927*
Field Nursing Visits: Total	*8,159*	*12,977*	*14,488*	*15,091*	*15,136*
Health supervision: Total	*5,021*	*9,093*	*9,769*	*11,500*	*11,658*
Infant	1,280	2,848	2,407	2,359	2,115
Preschool	653	3,616	4,699	4,938	4,580
School	2,947	2,438	2,520	3,816	4,448
Adult	141	191	143	387	515
Maternity service: Total	*421*	*917*	*1,150*	*996*	*855*
Prenatal	241	557	699	502	454
Delivery	2	2	2	1	2
Postnatal	178	358	449	493	399
Tuberculosis: Total	*373*	*624*	*1,032*	*865*	*1,152*
Infant	13	71	49	36	61
Preschool	55	145	185	163	218
School	139	180	354	298	450
Adult	166	228	444	368	423
Other communicable: Total	*748*	*693*	*1,019*	*1,036*	*759*
Infant	35	29	52	10	13
Preschool	175	149	265	106	143
School	523	490	650	901	591
Adult	15	25	52	19	12
Care of sick (non-communicable):					
Total	*1,596*	*1,650*	*1,518*	*694*	*712*
Infant	54	118	79	21	15
Preschool	95	190	186	35	37
School	1,270	1,162	833	315	323
Adult	177	180	420	323	337
Percentage distribution by type of service: Total	*100%*	*100%*	*100%*	*100%*	*100%*
Health supervision	61	70	67	76	77
Maternity service	5	7	8	7	6
Tuberculosis	5	5	7	6	7
Other communicable	9	5	7	7	5
Care of sick (non-communicable)	20	13	11	4	5
Percentage distribution by age group served: Total	*100%*	*100%*	*100%*	*100%*	*100%*
Infant	17	24	18	16	15
Preschool	12	31	37	35	33
School	60	33	30	35	38
Adult	11	12	15	14	14

SCHOOL HEALTH EDUCATION SERVICE

During the three school years 1923–1926 the demonstration director of health education served as supervisor of health education in the Fargo public schools, by formal appointment at a salary of one dollar per year. In September, 1926, she was succeeded in the latter position by a supervisor appointed at full salary as a member of the regular school staff. She remained in Fargo in an advisory capacity until the spring of 1927. Throughout her stay she gave the parochial schools, at their request, the same type of supervision as the public schools received.

Administrative Procedure

In supervising the work of the classroom teacher the director of health education of the demonstration endeavored to conform to local precedent established by other supervisors.[2] All of the procedures which she initiated were approved by the school authorities in advance and introduced through the regular administrative machinery.

The channels of communication between the supervisor and the teachers included classroom visits, group teachers' meetings, and occasional bulletins.

It was the aim of the supervisor to avoid any unnecessary intervention between teacher and child. During the first year, while the teachers were all but overwhelmed by the task of learning the forty pupils as individual health problems, the greatest help the supervisor could give was through informal classroom visits. These visits, very frequent and very brief, served several purposes: to reinforce the word of the teacher and supply additional motivation for the children's effort to observe the health habits; to give information in a way which did not detract from the authority of

[2] There were supervisors, assistant supervisors, and special teachers of art, music, manual training, and physical training, and a supervisor of penmanship.

the teacher; to interpret the physician to the teacher, and help her to see the significance of the health characteristics which she quickly began to note and ask about; and to answer her own questions and to suggest helpful sources of information.

The longer and more formal "demonstration lesson" was used to help the teacher focus interest in health as a straight natural science subject. The first winter, food models[3] in hundred-calorie portions were used in the different buildings. Through play with these the children learned how to get model meals, and the incidental conversation which resulted reinforced the whole daily behavior program as a unit. This series of lessons was followed by a round of question boxes—pupils in every room, and sometimes teachers, putting in their own questions or those sent from home. By the time the second round of these question-box visits was begun, the teachers had risen to the occasion and handled their own questions so that the plan was allowed to lapse.

After the first year direct instruction of the children by the supervisor was largely discontinued. Effort was concentrated on helping the teacher to make independent use of source material and to understand increasingly the problems of the child. Visits were limited to calls for encouragement and praise—giving the teacher opportunity to ask questions on the side but not imparting information to the children. Two exceptions were made during the year in order to keep in view the natural science aspect of health teaching. One round of the primary rooms was made with the "Little Red Hen"—whose story began their formal reading experience, and one to the grades above the second

[3] The models were kindly loaned by Dr. F. Burger, director of health and physical education of the Kansas City public schools, and by Mary E. Murphy, director of the Elizabeth McCormick Memorial Fund.

with a pair of white rats which had developed (in the nutrition laboratory of the North Dakota Agricultural College) a striking illustration of deficiency feeding. In the third year—so far as direct and deliberate contact with the elementary children was involved—the demonstration director of health education left the picture.

Permanent Program

The routine worked out during these three years and now taken over in its entirety is the teachers' own program, and its direction is in the hands of a supervisor who is an integral part of the school organization. Every item of the program was evaluated by the teachers themselves, and each year, after it had been given a fair trial, the appropriate group decided whether each step in the program should be continued. For example, the use of the daily health record, originally intended merely as an entering wedge, was continued after the end of the first period by unanimous vote of the principals. The home health record was discontinued by popular vote (by questionnaire) when its usefulness seemed to have been outgrown. The teachers' health committee, appointed by the superintendent during the third year, acted as an advisory committee, weighed in the balance all the elements used in the working out of the program, and evolved the course of study which is now in use.[4]

[4] See Maud A. Brown, *Teaching Health in Fargo* (New York: Commonwealth Fund Division of Publication, 1929).

PERSONNEL

Among the city officials of Fargo the demonstration came most closely into contact with Dr. B. K. Kilbourne, health officer, and J. G. Moore, superintendent of schools. The following workers were members of the demonstration staff during part or all of the five-year period:

Director of Demonstration

WILLIAM J. FRENCH, M.D., 1923–1925
WILLIAM DEKLEINE, M.D., 1926–1927

Director of Medical Service

LESTER J. EVANS, M.D., 1923–1927

Director of Health Education

CARA L. HARRIS, 1923
MAUD A. BROWN, 1923–1927

Public Health Dentist

[5]R. C. LEONARD, D.D.S., 1927

Statisticians

MARY V. DEMPSEY, 1923–1924
VIRGINIA C. MERRITT, 1924–1925
ELIZABETH L. BREZEE, 1925–1927

Director of Nursing Service

EDITH B. PIERSON, 1923–1927

Nurses
(Staff of Six)

[6]TONETTA HANSON	DOROTHY ROHRER	[5]DOROTHY SKEWES
ORA SCOVILLE	CLARA B. RUE	[5]ROSANNE VON DRASEK
DOROTHEA GLASOE	OVEDE GJORVAD	[5]FRANCES PAULSON
SARAH SAND	VIOLET ANDERSON	[5]THERESA KERN
MRS. MEDCHILL	ELLA GIMMESTAD	RUBY GODFREY
JOSEPHINE ORVOLD	LOA ARNASON	SELMA HERTSGAARD
MRS. JOSEPHINE NELSON	MARY SCHEER	OLGA B. LARSON
	MARTHA BREDEMEIER	

[5] Remained as members of the health department staff.
[6] Became supervisor of nurses under permanent program.

Secretarial and Clerical Staff

(Average staff five plus)

BARBARA C. BACH MRS. OSCAR OLSON FERN MURRAY
LOTTIE PETERSON RHEA LOWDEN ALMA TROVE
[5]MRS. E. S. MIKESH MRS. LILLIAN WAY MRS. GEORGE R. TWEETON
MRS. H. E. BERRELL MRS. C. E. PETERSON MRS. GRACE LARSON
LOUISE KNIGHT

[5]See footnote on page 198.

Appendix B

COSTS

THE total costs of the local health services provided in Fargo, whether by public, private, or demonstration funds, during the five demonstration years, were as follows:

TOTAL AND PER CAPITA COSTS OF LOCAL HEALTH SERVICES, 1923–1927

	1923	*1924*	*1925*	*1926*	*1927*
Total	*$35,054*	*$38,847*	*$39,352*	*$37,999*	*$41,593*
Salaries of technical staff	*16,572*	*22,013*	*22,690*	*21,846*	*22,396*
Health officer	2,725	4,250	4,500	4,500	4,500
Medical	1,717	2,671	2,750	2,503	1,140
Nursing	8,923	11,292	11,540	10,943	10,757
Health Education[1]	1,867	2,400	2,400	2,400	2,400
Sanitation	1,340	1,400	1,500	1,500	1,500
Dental	.....	.....	.....	.....	2,099
Operating costs	*6,780*	*8,111*	*8,435*	*7,971*	*9,227*
Clerical salaries	1,500	2,000	2,000	2,000	2,000
Transportation	195	550	1,110	987	793
Other	5,085	5,561	5,325	4,984	6,434
Isolation Hospital	*11,702*	*8,723*	*8,227*	*8,182*	*9,970*
PER CAPITA					
Total	*$1.46*	*$1.59*	*$1.57*	*$1.48*	*$1.59*
Salaries of technical staff	*.69*	*.90*	*.90*	*.85*	*.86*
Health officer	.11	.17	.18	.17	.17
Medical	.07	.11	.10	.10	.04
Nursing	.37	.46	.46	.43	.41
Health Education	.08	.10	.10	.09	.09
Sanitation	.06	.06	.06	.06	.06
Dental	...	...	...	...	.09
Operating costs	*.28*	*.33*	*.34*	*.31*	*.35*
Clerical salaries	.06	.08	.08	.08	.08
Transportation	.01	.02	.04	.04	.03
Other	.21	.23	.22	.19	.24
Isolation Hospital	.49	.36	.33	.32	.38

[1] Includes salary of play center assistants during summer of 1923.

The process by which these costs were gradually assumed by the community has been traced in Part One of this report.[2] In 1923 local appropriations for health work amounted to $24,132 out of the total of $35,054 required for local health services. In 1927, $36,264 was paid from local funds out of the needed total of $41,593. Local appropriations for the post-demonstration program are at the rate of $40,600 a year, practically the equivalent of the full expenditure for local services in 1927.

Local health services are here defined as including all activities which would ordinarily form part of a continuing health program supported by public funds. In addition, there were considerable expenditures in Fargo for demonstration organization, administration, and evaluation which were made necessary by the fact that the demonstration formed part of a national educational project:

EXPENDITURES FOR TEMPORARY DEMONSTRATION PURPOSES[3]

	1923	*1924*	*1925*	*1926*	*1927*
Total	*$27,228*	*$28,924*	*$27,879*	*$29,143*	*$27,016*
Salaries of technical staff	*14,117*	*15,530*	*15,215*	*17,853*	*15,568*
Operating costs	*13,111*	*13,394*	*12,664*	*11,290*	*11,448*
Clerical salaries	4,412	7,074	6,431	6,289	5,755
Transportation	4,802	3,583	3,608	2,602	3,028
Other	3,897	2,737	2,625	2,399	2,665

Unit Costs of Local Health Services

According to detailed time records kept during 1925 and 1926 the salary cost for the demonstration pediatrician averaged about $2.50 per hour employed; the salary cost

[2] Pp. 32 to 49.

[3] Cost of services not required for a permanent local program, including the salaries of the demonstration director and statistician, and salary paid for that part of the time of the medical director, nursing supervisor, and director of health education which was not used for local purposes. Clerical, transportation, and other costs are similarly divided.

of an hour of field service with its associated travel and office work (here called the "field hour") averaged $3.25. Time records kept by the staff nurses throughout the demonstration period show that the average salary cost for nursing service was about $.89 per hour employed, or $1.76 per field hour.[4]

These time records also show that the health center examinations of infants and preschool children were made at an average rate of 4.27 per field hour of medical service and 3.20 per field hour of nursing service. Medical and nursing salary amounted to $1.31 per examination of which $.76 was salary cost for the physician and $.55 for the nurse.

School examinations were made at a rate of 7.33 per hour of medical field service. Their salary cost was $.70, of which $.44 was for medical and $.26 for nursing salary.

Nursing visits of different types show the following unit time and salary cost:

UNIT TIME AND SALARY COST OF NURSING FIELD VISITS

	Visits per Hour of Field Service	*Salary Cost per Visit*
Health supervision		
Infant	4.29	$.41
Preschool	7.07	.25
School	6.02	.29
Adult	4.42	.40
Maternity		
Prenatal	3.15	.56
Delivery	....	...
Postnatal	3.05	.58
Tuberculosis	4.92	.36
Other communicable	5.66	.31
Care of sick (non-communicable)	2.15	.82
In behalf of patient	2.65	.66
Not found, not taken up	13.99	.13

[4] For detailed discussion of method of calculating service costs and certain additional detail on costs for nursing service in Fargo, see Emma A. Winslow, Service Costs and Program Planning (*The Public Health Nurse*, November, 1928).

The total field hours and salary costs for medical and nursing service were as follows for the various age groups:

FIELD HOURS AND SALARY COSTS FOR MEDICAL AND NURSING SERVICE, BY AGE GROUP SERVED

FIELD HOURS

	1923	1924	1925	1926	1927
Infant and preschool: Total	*913*	*2,196*	*2,436*	*2,183*	*2,054*
Medical service in health center	212	424	498	369	304
Nursing service in health center	191	380	492	561	617
Field nursing visits	510	1,392	1,446	1,253	1,133
School: Total	*4,113*	*4,545*	*4,251*	*4,346*	*4,449*
Medical service in schools[5]	337	429	380	363	391
Nursing service in schools[5]	2,575	3,047	2,887	3,040	3,076
Field nursing visits	1,201	1,069	984	943	982
Adult: Total	*290*	*475*	*692*	*597*	*578*
Maternity nursing visits	139	298	368	299	250
Other field nursing visits	151	177	324	298	328

SALARY COST

	1923	1924	1925	1926	1927
Infant and preschool: Total	*$1,976*	*$4,472*	*$4,998*	*$4,369*	*$3,859*
Medical service in health center	663	1,328	1,558	1,264	912
Nursing service in health center	358	674	873	960	1,039
Field nursing visits	955	2,470	2,567	2,145	1,908
School: Total	*8,121*	*8,648*	*8,064*	*8,055*	*8,008*
Medical service in schools[5]	1,054	1,343	1,192	1,239	1,173
Nursing service in schools[5]	4,820	5,407	5,125	5,203	5,182
Field nursing visits	2,247	1,898	1,747	1,613	1,653
Adult: Total	*543*	*843*	*1,228*	*1,022*	*973*
Maternity nursing visits	260	529	653	512	421
Other field nursing visits	283	314	575	510	552

Expressed in relation to the total population of Fargo, per capita salary costs for medical and nursing service to infants and preschool children for the four years 1924 to 1927[6] averaged $.18, of which $.05 was for medical and $.13 for nursing service. The cost of similar service for school children averaged $.32 per capita, with $.05 for

[5] Includes a small number of examinations of school children in health centers.
[6] Omitting the incomplete year, 1923, during which services were being organized.

medical and $.27 for nursing service. Maternity and other public health nursing service to adults cost $.04 per capita.

Nursing field visits cost about $.20 per capita per year, divided as follows:

Health supervision	$.12
Maternity	.02
Tuberculosis	.01
Other communicable	.01
Care of sick	.04

Nursing service in schools cost about $.20 per capita per year and nursing service in health centers about $.04. Total nursing salary costs averaged about $.44 per capita.

Appendix C

INCIDENCE OF DEFECTS FOUND AMONG FARGO INFANTS AND PRESCHOOL CHILDREN EXAMINED AT HEALTH CENTERS 1923–1927

NUMBER OF CHILDREN EXAMINED

	Under 1 Year	*1–2 Years*	*2–5 Years*
Total	*1,199*	*275*	*837*
Boys	576	137	394
Girls	623	138	443

PER CENT OF CHILDREN WITH DEFECTS

	Under 1 Year	*1–2 Years*	*2–5 Years*
SKIN			
Slight	3.0	3.3	1.0
Moderate and severe	3.4	2.5	1.8
EYES			
Slight	0.3	0.7	0.7
Moderate and severe	0.9	2.5	1.9
EARS			
Slight	...	...	0.1
Moderate and severe	0.3	0.7	0.5
TEETH			
Slight	0.3	1.1	3.1
Moderate and severe	1.2	3.6	34.2
NOSE AND THROAT			
Slight	0.5	9.1	11.6
Moderate and severe	0.8	4.4	19.1
HEART			
Slight	...	0.7	1.1
Moderate and severe	0.4	0.4	0.4
LUNGS			
Slight	0.2	...	0.2
Moderate and severe	0.3	1.1	0.4
ABDOMEN			
Slight	1.1	1.5	0.5
Moderate and severe	1.7	1.5	1.3
GENITALS—BOYS			
Slight	11.1	9.5	7.9
Moderate and severe	12.5	13.1	11.9
GENITALS—GIRLS			
Slight	0.2	...	0.2
Moderate and severe	0.2	...	0.5

PER CENT OF CHILDREN WITH DEFECTS (*Continued*)

	Under 1 Year	*1–2 Years*	*2–5 Years*
ORTHOPEDIC			
Slight	...	1.8	2.4
Moderate and severe	0.3	0.7	1.2
NEUROLOGICAL			
Slight	0.1	...	0.2
Moderate and severe	0.4	1.9	1.2
CONGENITAL			
Slight	...	...	...
Moderate and severe	0.8	0.4	0.2
NUTRITION[7]			
Slight	30.9	28.6	36.7
Moderate and severe	6.3	5.6	4.1
RICKETS			
Slight	9.8	27.3	10.6
Moderate and severe	1.0	3.3	1.1

[7] Percentages based upon the records of only 1,161 children.

INCIDENCE OF DEFECTS FOUND AMONG FARGO SCHOOL CHILDREN 1923–1926

	6–9 Years	10–13 Years	14 Years and Over
NUMBER OF EXAMINATIONS			
Total	*4,829*	*3,673*	*909*
Boys	2,354	1,974	609
Girls	2,475	1,699	300
PER CENT OF EXAMINATIONS SHOWING DEFECTS			
SKIN			
Slight	0.4	0.3	0.6
Moderate and severe	2.5	1.9	2.7
EYES			
Slight	3.0	2.6	1.2
Moderate and severe	2.7	3.2	2.8
VISION			
Slight	15.6	16.4	17.1
Moderate and severe	5.9	9.9	9.1
EARS AND HEARING[8]			
Moderate and severe	1.4	1.0	1.4
DENTAL[9]			
Moderate and severe	79.8	68.6	70.6
NASO-PHARYNX			
Slight	8.0	5.3	3.5
Moderate and severe	7.0	2.9	1.0
TONSILS			
Slight	11.6	7.2	4.6
Moderate and severe	11.2	5.6	3.2
THYROID—BOYS			
Slight	2.9	8.3	8.3
Moderate and severe	0.0	0.4	1.5
THYROID—GIRLS			
Slight	5.8	16.3	13.8
Moderate and severe	0.0	3.2	5.4
HEART			
Functional	3.6	2.9	2.6
Moderate and severe	0.1	0.2	0.6
LUNGS			
Moderate and severe	0.6	0.3	0.6
ORTHOPEDIC			
Slight	3.1	6.7	8.4
Moderate and severe	2.1	3.1	5.4
NUTRITION—BOYS			
Moderate	63.7	57.6	41.9
Severe	7.7	6.2	3.0
NUTRITION—GIRLS			
Moderate	47.4	48.7	34.8
Severe	4.3	6.3	1.0

[8] Slight defects of hearing not tabulated because hearing tests not done routinely.
[9] Based on ratings of public health dentist; includes only 1927 examinations.

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